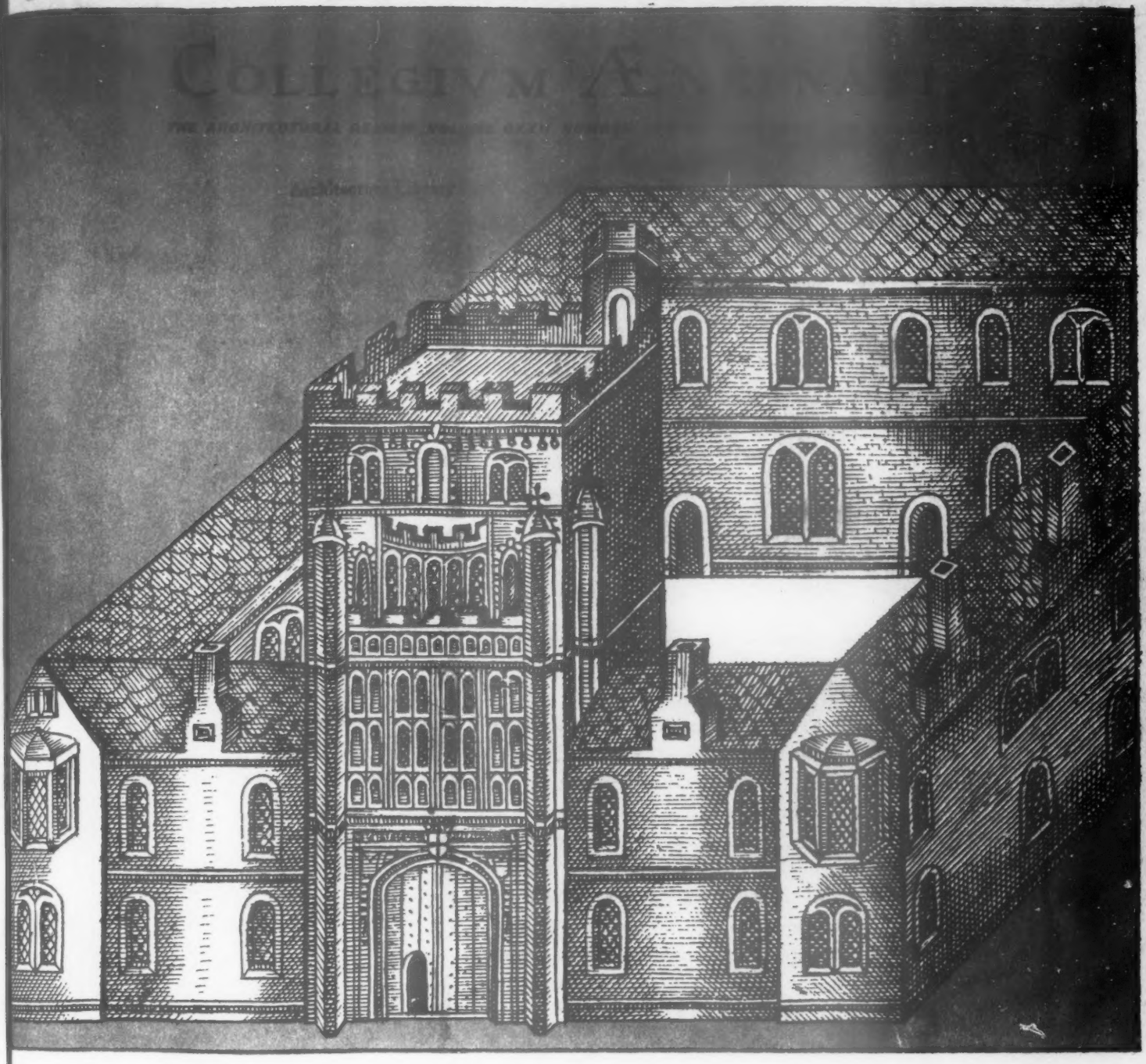

Æneus hú naſus præluret. ut inſula ponto
Prominet, aut reliquo naſus in ore ſtet.
Quæ domus impenſis Gulielmi ſtructa Smythæi,
Æneo & æterno nomine digna manet.

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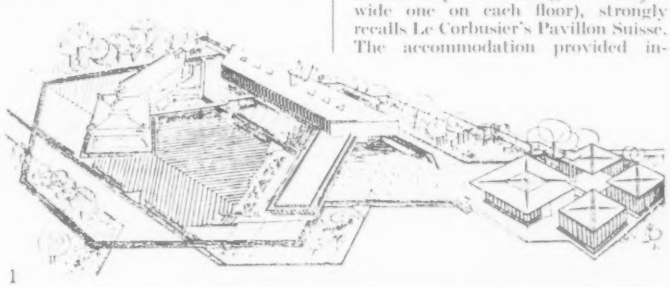
MARGINALIA

Boys' Town at Opicina

One of the few consequences of Bruno Zevi's campaign for Organic Architecture that has proven to be more than Wright-and-soda, is Marcello D'Olivo's camp-settlement for boys at Opicina outside Trieste, and even here the emergence of D'Olivo's personal style is beginning to eliminate any obviously Wrightian elements. The planning of the central area, 1, still retains some qualities of Chicagoan inspiration in its use of a complex diagonal planning grid governing the relationships of the refectory (left), dormitory (at back) and printing works (right). But as 2 shows, the canted walls and generally anti-rationalist approach of the refectory, which was designed early, has been replaced by a much more rectilinear approach in the dormitory, while the whole design of the printing works buildings has been dominated by the basic structural device of split slabs, balanced on a beam across a central upright, 3 one of the few European post-war structures that seem to rival Felix Candela's in boldness and ingenuity.



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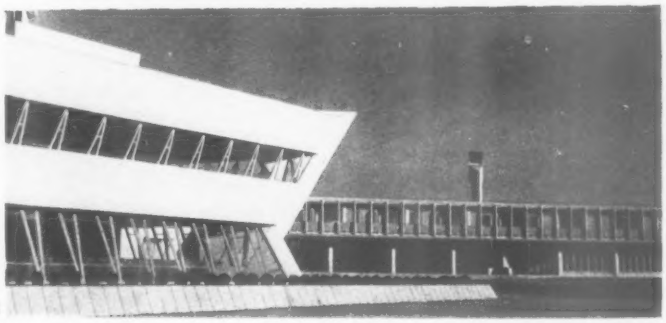


2

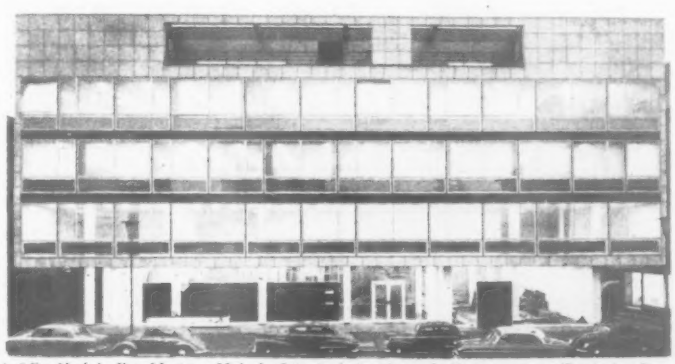
3

boys' town at Opicina

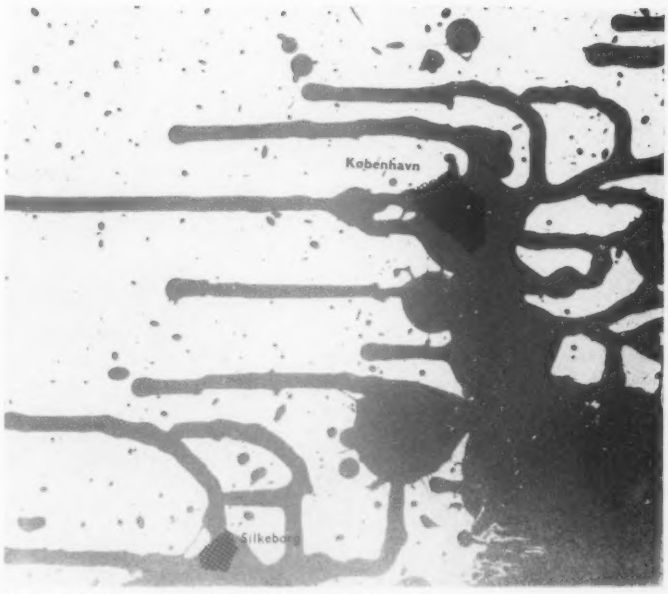
1, general view with refectory at left; 2, refectory with dormitory block beyond; 3, centre-supported roof-slabs for the printing works (extreme right of 1.) (L'architettura)

Frameless Façade in Frankfurt

Now that exposed structural frames with a strong vertical emphasis seem to be mandatory, if not actually obsessive, for large urban buildings in Federal Germany, particular interest attaches to Otto Apel's recent block of shops and flats in the Berlinerstrasse, Frankfurt-A.-M. Here, 4, the main supporting columns are set some five feet back from the cantilevered façade, which, in spite of the restless rhythm of the window mullions (beginning with a narrow bay and ending with *half* a wide one on each floor), strongly recalls Le Corbusier's Pavillon Suisse. The accommodation provided includes shops, three floors of offices and flats both on the top floor and in a mews-annexe at the back. Each of the flats on top of the main block has a minute garden court, and the annexe is crowned by a two-storey photographic studio.



4, Office block in Frankfurt-am-Main by Otto Apel: façade on the Berlinerstrasse. (Deutscher Bauzeitschrift.)



5, satirical zoning scheme from Asger Jorn's Fin de Copenhague.

Jorn's Copenhagen

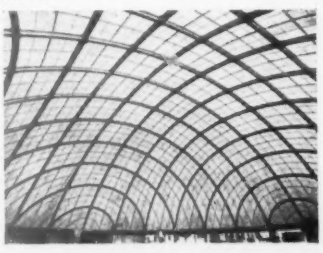
The old Futurist and dadaist techniques of insult, abuse and satire die hard, if only because the Modern Movement that grew out of them has developed almost as many pomposities, inhumanities and hypocrisies as the attitudes it has replaced. Among the most salutary recent eruptions of the grand old method is Asger Jorn's *Fin de Copenhague*, an edition-de-luxe limited to 200 copies and bound in flong, that uses the combined techniques of collage and action-painting to satirize *gemütlich* Europe in general, the author's native Copenhagen in particular, and Le Corbusier in passing. Thus, much of the 'text' has been clipped from steamy newspaper serials and confronted with clippings from the ultimate guardian of middle-class morality, the agony column of *Elle*; noisy slogans (APPELS, Votre Vie Transformée, Le Problème est Résolu) have been culled from many sources, but all recall the propaganda for *la Ville Radieuse;* and Copenhagen is satirized not only as the seat of ancestral boredoms, and in other standard terms, but also for being a 'well-planned city,' in the sense of making a pretty pattern of black and green in the planner's report—only in this case the pretty pattern is produced by applying place-names to patches of mechanical tint superimposed on (apparently) an action painting that has 'run,' 5. The result has the elegance, and the lack of meaning, of a zoning diagram, and the paper-planners pretensions are cut down to size by the accurately backhanded caption 'Un splendide paysage que Bernard Buffet a souvent peint.'

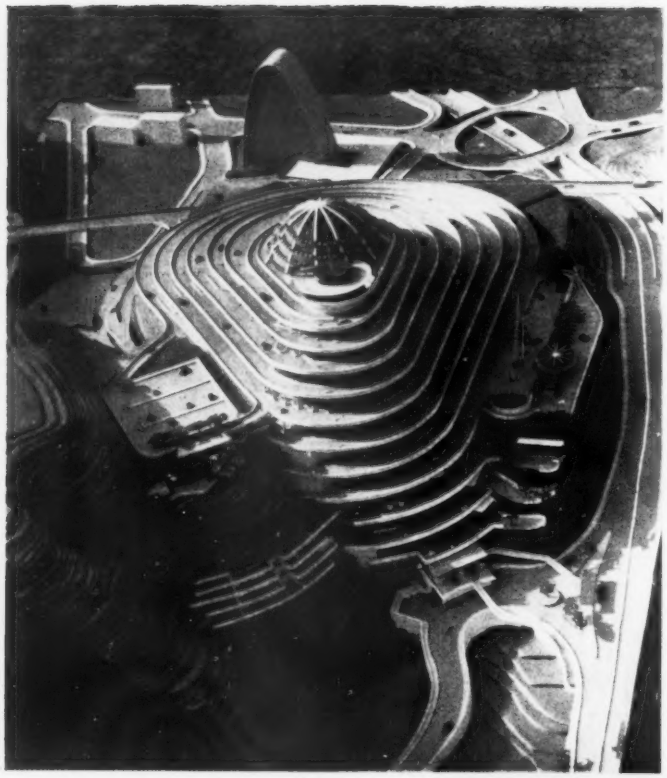
The whole of this urbanistic cold douche was realized—one understands—in a single afternoon of inspired exasperation, and is a remarkable piece of improvisation among the techniques of graphic reproduction. All the collage material for the text and pictorial illustrations was the product of a lunchtime excursion to a single news-stand and—when pasted-up—provided the plates for the second, black and white, printing on the pages. The first run through the press, for the colour-work, however, resulted in what are vitually monotypes, the colour being applied by Jorn himself, and somewhat different on every sheet. The whole cavalier attitude to the sacred rituals of printing may be taken as a fair example of the frame of mind that prompts Jorn to refer to himself and his colleagues as the *Bauhaus Imaginiste* or even the *Bauhaus Imaginaire*. The scope of the original Bauhaus ran from typography to town planning as well, and one hopes that Jorn may be inspired or exasperated enough in the near future to demolish some of the middle sections of this spectrum—the home and furniture magazines should provide a wealth of over-ripe material.

Un-geodesic dome

Departing from the pattern of straight structural elements disposed in approximate great-circle curves that the prestige of Buckminster Fuller has made into a norm for framed domes, the Krupp Pavilion at the Hanover Fair is an interlace of arches that are all segments of circles, but only two—the meridian

6, below, dome of Krupp exhibition pavilion. (Acier).

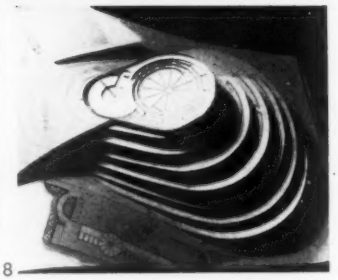




7

tarpeian helicoid

7, the complete scheme of terraces and ramps in model form; 8, the scheme as presented in the cut-out pages in Integral.



8

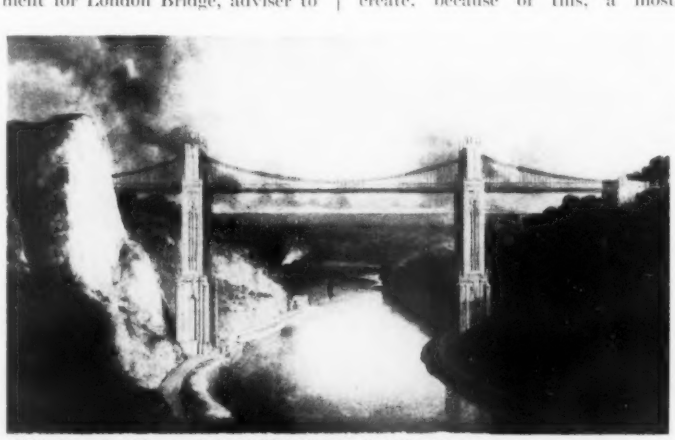
ones that intersect at the crown—can be considered as geodesic. The resulting structure, 6, is neither a true space-frame, nor statically determinate, its stability depending on the rigidity of the structural members and the resistance of their junctions to deformation, and it seems best to regard it as an example of the application of a form of Plastic Theory to a non-rectilinear structure. Aesthetically it seems equally out of step with recent developments, and to have more in common with the structures with which the German steel industry used to advertise its prowess at exhibitions before 1914.

Tarpeian Helicoid

A shopping centre project that goes well beyond the average both in originality and ingenuity has recently been advanced for a site outside Caracas, known – rather dauntingly – as the Roca Tarpeya. The roughly sugar-loaf form of the Roca has suggested the organization of the commercial accommodation, and the vehicular circulation, as a double spiral around the hill itself, 7, alternate ramps serving up and down traffic, with pedestrian traffic moving independently from level to level by escalators and lifts. The virtual impossibility of presenting the detail plans of such a scheme by normal methods has led the Venezuelan magazine *Integral*, who first published the project, to use a system of hinged overlays superimposed on a single page, 8, in order to concentrate the information into a manageable space, but even then the backs of the overlays had to be used as well to make the floor overlaps clear.

Telford Exhibition

The bicentenary of the birth of Thomas Telford, first president of the Institution of Civil Engineers, has been celebrated by an exhibition (directed by Richard Buckle, of Diaghileff exhibition fame) at the Institution's London headquarters. Telford, engineer of the Caledonian and Göta canals (AR, August, 1956), of the Menai and Conway bridges, the Chirk and Pont-y-Cysylte aqueducts (AR, December, 1953), designer of St. Katharine's Docks (AR, July, 1957) and innumerable small bridges and other works in the Severn Basin and the Highlands of Scotland, projector of a Perpendicular Gothic bridge over the Avon at Clifton, 9, and a single-span cast-iron replacement for London Bridge, adviser to the Czar on the Polish Road, poetaster and friend of Southey and Campbell, was one of the most diversified and many-sided talents that ever set hand to the English landscape, and endowed with a fine sense of the Picturesque—as witness his account of the siting of the Conway Bridge. He touched little that he did not adorn, to paraphrase Goldsmith's epitaph, and the exhibition, if too limited in scale to do full justice to the breadth of his creative ability, will at least have whetted appetites for L. T. C. Rolt's promised biographical study, a companion volume to that on Brunel which will be reviewed in these pages in the near future.



9, Telford's projected Perpendicular Gothic bridge over the Clifton Gorge.

RIBA Library Group

It is ten years now since a group of members of the RIBA and a few others interested in and using its library formed themselves into the RIBA Library Group. During that time the Group has, under the secretaryship of Mr. Kenneth S. Mills, increased over the years both in size (there are 162 members now) and in scope. Amongst its activities was a talk by Mr. John Summerson on the Bute drawings shortly after they had come to light at a Sotheby's sale.

The Mackintosh centenary was celebrated in an address by Mr. Thomas Howarth. A number of meetings was given to the identification of drawings from the very large and important collection of the Institute; much valuable work was done and one outcome was the subsequent identification (and publication in the AR of March, 1953) by Miss S. Lang of scores of drawings by A. Visentini not only in the RIBA but also in the British Museum. Several other papers, e.g. one by Dr. Rosenau on Vitruvius and another by Mrs. Phoebe Stanton on Pugin, were subsequently published, and Miss Priscilla Metcalf's article on Balmes House (AR, June, 1957) was first given as a lecture to the Group.

CORRESPONDENCE

Pleasure Gardens at Bomarzo

To the Editors,

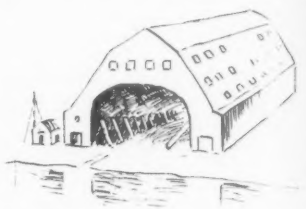
SIRS,—The technical analysis of the Gardens which was published in AR June, 1957, has indirectly emphasized a vital characteristic of Orsini's *Bosco*. In the sculpture that was no doubt meant to *seem* to be 'Polyphemus killing one of Odysseus' companions,' the victim is actually a woman. This malicious vein is found in the attitudes or gestures of many of the human sculptures in the garden. Today, standing in what are really very ordinary fields, they create, because of this, a most intensely surrealist atmosphere, and in Orsini's day must have characterized his pleasure-garden, for he wrote at the entrance 'Chi con ciglia inarcate, Et labbre strette Non va per questo loco . . .'

Yours, etc.,
C. H. DAVIDSON
London, S.W.1.

American Early Industria

To the Editors,

SIRS,—The recent issue featuring Functional Building was most interesting, even if it missed many



early Manchester warehouses, breweries, etc., still standing. In an exhibition of Americana held in the City Art Galleries a few years ago, I made the above thumbnail sketch.

Yours, etc.,
RUPERT M. S. KAY
Fallowfield, Manchester, 14.

ACKNOWLEDGMENTS

The colour block on page 274 appears by courtesy of Stora Kopparbergs Bergslags Aktiebolag, Falun, Sweden.

We regret that the cover of the September issue of the Review, a photogram by Kenneth Garland, was not acknowledged.

MARGINALIA, pages 223–224: 8, Toomey, Arphot. ROOF GARDEN AT GUILDFORD, pages 230–234: Galwey, Arphot. UNIVERSITIES, pages 230–251: frontispiece, top, S. W. Newbery. Yesterday: 1, A. Barrington Brown; 2, Arkitektura Polska; 3, Archivo Más, Barcelona; 4, 5, Mansell Collection; 6, Toomey, Arphot; 7, A. F. Kersting; 8, F. D. Nichols. Today: 2, Stewart Bale; 3, 7, Photo Finishers; 5, Birmingham Post & Mail; 11, copyright University of Sheffield; 14, 15, University of Liverpool; 16, 21, Aero Pictorial; 18, Donald I. Innes; 25, H. Cooper & Son; 26, Elsam, Mann & Cooper; 27, 28, Toomey; 29, Manchester Guardian; 31, Richard Einzig; 33, John R. Pantlin; 37, Hammerschmidt; 38, Hylton Warner. 3D, pages 252–254: frontispiece top, 5, 6, 7, 12, 15, 17, 18, Toomey; frontis centre, 11, Ernst Scheidegger; frontis bottom pair, 1, 8, 9, I. de Wolfe, Arphot; 2, Ministry of Works; 3, Crown Copyright; 10, Eric de Maré; 13, 14, 16, Galwey. HOUSE NEAR BEAULIEU, pages 255–258, Toomey. FIFTY YEARS OF ARCADIA, pages 259–262, Nairn, Arphot. CURRENT ARCHITECTURE, pages 263–266: Laboratories at Welwyn Garden City, Brazier. Schools at Coventry, Toomey. MISCELLANY, pages 267–276: Exhibitions, 1, John R. Freeman; 3, Sam Lambert; 6, David Farrell. Functional Tradition, 4, J. M. Richards, Arphot; rest, Eric de Maré. Counter Attack, 2, Toomey, Airphot, Arphot. SKILL: Interiors, pages 277–280: Bar at Brighton, Stewart Bale. Techniques, pages 281–286: 6, 7, 11, 12, 16, 21–23, 25, 27, 31, 32, Toomey; 9, Mayes; 10, S. W. Newbery; 18, Peter H. Jones. The Industry, pages 288–290; Built-in Designs, John Maltby.

THE ARCHITECTURAL REVIEW

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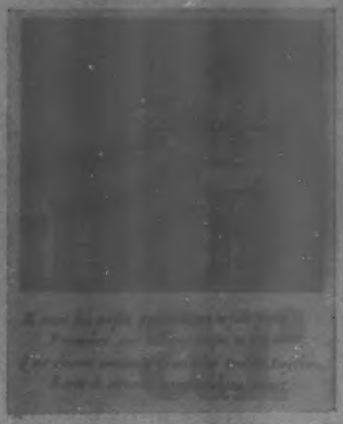

The cover shows Brasenose College, Oxford, as it appeared in the series of drawings of Colleges made by John Bereblock, fellow of Exeter and St. John's, on the occasion of Queen Elizabeth's visit to the university in 1566, with appended to it, Thomas Neal's somewhat macaronic apostrophe on William Smith, its founder, and his celebrated, if apocryphal nose. The rise of the Universities as seats of learning, this evolution of the College Plan, of which Brasenose is a prime example, and the other types of buildings that traditionally house them, their present situation, immediate prospects and future possibilities, are discussed by Nikolaus Pevsner and Lionel Brett in two articles which begin on page 234.

223 **Marginalia**

224 **Correspondence**

226 **Frontispiece**

227 **Mondrianism** *by Reyner Banham* It is widely felt that the work the Dutch abstract artist Piet Mondrianism has a particular relevance to architecture, and he has been made titular patron of a philosophy of design, Constructionism, which is held responsible for such buildings as those at Illinois Institute of Technology, and others that bear superficial resemblance in the composition of his paintings. On the basis of three recent publications on Mondrianism and his associates, Mr. Banham proposes, firstly, that this Constructionist philosophy neither derives from Mondrianism, nor fully expresses his theories, and secondly, that at the one point where the two philosophies overlap—Mondrianism's apparent classicism—the philosophical attitude there revealed is entirely inappropriate to modern design, and more like that of early Renaissance humanists who hoped, in architecture, to symbolize the Deity in a simple geometrical device.

230 **Roof Garden at Guildford** *Architects, G. A. Jellicoe and Partners*

234 **Universities: Yesterday** *by Nikolaus Pevsner* The origins of universities are obscure, though their appearance as an organized form of institution certainly dates from the twelfth century or a little earlier, and the word *Universitas* began to be used in the thirteenth. As Professor Pevsner points out, this word applied originally neither to the totality of the organization nor to the supposed universality of its educational programme, but simply to the teaching masters as a corporate body, resembling other mediaeval guilds. Thus the earliest university buildings tended to be designed to serve their needs first, later, those of students. For this reason, and the tendency of benefactors to endow for whatever needs happened to be most pressing at the time, there is no one building-type peculiar to universities as a whole, and in any particular town, the university buildings may be a compact block of teaching rooms, a loose aggregation of colleges or a complete and organized campus.

240 **Universities: Today** *by Lionel Brett* The absence of any one dominating architectural form makes Universities hard to recognize, harder to design. Nevertheless, each general type of university is characterized less by a mode of instruction, than by the way in which staff and students live. The failure of so much recent University design stems not only from stylistic cowardice, but equally from a failure to recognize and intensify this mode of life, to integrate its sense of community both physically and visually. But Mr. Brett finds hope for the future in some recent projects in which the collegiate theme has been recovered, or a viable campus development is possible.

252 **Lettering: 3D** *by Nicolete Gray* Architecture being an affair of solid matter arranged three-dimensionally, it is only proper that three-dimensional lettering should have a special place in the architect's esteem, Mrs. Gray examines the historical tradition of three-dimensional lettering, raised, incised, free-standing and illusionistic, and shows the considerable subtlety of a great deal of this work, particularly in the matter of choice of section. Such subtleties are often missing in current work, though the problems raised by new techniques, such as back-lighting, still produce work of interest.

255 **House near Beaulieu, Hants** *Architect, Hugh Casson*

259 **Fifty Years of Arcadia** *by Ian Nairn* Hampstead Garden Suburb has been in existence for fifty years, and although it was preceded by Letchworth, it is of far greater importance historically by reason of its visual qualities, and by reason of its unfortunate progeny. The garden suburb, at its best, is father to the council estate at its worst, and in analysing what went wrong with the prototype, we can approach the faults of its descendants from behind. If, as Mr. Nairn suggests, the garden suburb is an aggregation of arcadian illusions, then the totality must also maintain the illusion—there must be no weak patches, no opportunity to grasp the structure of the estate as a whole. Surprise and variety must be continuous, art must everywhere conceal art, serpentinings and changes of level must be exploited to the full, tree-planting must be adequate and in the right places—in other words, Picturesque Theory is mandatory, and there can be no compromise between urbanity and arcadia. Terrace housing, chopped up and arranged in a pseudo-picturesque manner, as in the New Towns, is as wrong as the intrusion of straight, over-developed, underplanted streets in Hampstead Garden Suburb.

263 **Current Architecture**

Miscellany

267 **Books**

269 **Exhibitions**

271 **Functional Tradition**

273 **Colour**

274 **Townscape**

276 **Counter-Attack**

Skill

277 **Interiors: Department Store Staircase, Stockholm** *Architect: Arne Rudberger*

Bar at Brighton *Designer: John Carter*

280 **Design Review: Poster Competition**

281 **Techniques: Fascia Lettering** *by John Sharp* The types of three-dimensional lettering discussed on pages 252-254 are seen today chiefly on shop fascias and similar locations, and John Sharp backs the aesthetic problems raised by Mrs. Gray with a survey of the very wide range of letter materials and ready-cut letters, fascia materials and lighting techniques that are available at present for work of this kind, and indicates some of the experimental solutions that have not yet achieved standardization or commercial availability.

286 **High-Fidelity equipment in the House near Beaulieu**

288 **The Industry**

290 **Contractors**

Author: *John Sharp* was born in Redditch in 1926 and educated at the local grammar school. Service in the Royal Navy 1944-47. He spent 3 years at the AA, during which his interest in workshop technique was stimulated and he started to make his own furniture; consequently he took a 2-year post-graduate course in the Department of Industrial Design (Engineering) at the RCA. Apart from working as an architect, he designs (and still makes) furniture, and teaches part-time at the Hammersmith School of Building. Married with four children, he lives in a red-gabled Victorian house in Dulwich

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THE ARCHITECTURAL REVIEW

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FIVE SHILLINGS

The planning of Ghyllgrove Estate, Basildon, by Lionel Brett and Kenneth Boyd, is an attempt to give greater urbanity to a new development by the radical application of townscape principles. The scheme is fully described and illustrated on pages 274–276, but Gordon Cullen's drawing opposite, draws particular attention to two of its salient features: the use of walls instead of fences, to maintain the sense of enclosure and ensure that private gardens are really private; and the relationship of pedestrian ways to roads—from the car in the foreground to that in the middle distance is a short, straight walk on foot, whereas by car it is a meandering way round, in order to reduce vehicle speeds and thus permit the use of sharp corners, instead of subtopian splayed angles.

Reyner Banham

MONDRIAAN

AND THE PHILOSOPHY OF MODERN DESIGN

Mondriaan, it is widely felt, was an artist whose works, methods and mind have an urgent relevance to problems of architectural design. Professor J. L. Martin, who knew Mondriaan personally, has commended what he calls "Mondriaan's Method" to architects[1]: In a recent book[2], David Lewis, a leading aesthetician of the Cornish school who has now taken up architecture, supposes that Mondriaan would probably have been an architect himself if born into another generation; and Richard Llewelyn Davies, the leading exponent of objective functional research in England, has defended Mondriaan's reputation against imputations of irrelevancy[3], on the grounds that 'If you reject Mondriaan and Mies van der Rohe you are rejecting all classical design from the Parthenon to Palladio.'

These three examples, cited here because they have been committed to print, are evidence of a wide-spread, if largely inarticulate, desire to make of Piet Mondriaan a kind of honorary posthumous god-father to Modern Architecture. In a less widespread and more partisan frame of reference, the last two quotations are also evidence of a determination to make the art of Mondriaan the justification of a particular philosophy of design that can best be represented by a set of end-linked concepts set out thus: CONSTRUCTION of CONCRETE ELEMENTS creating SPATIAL RELATIONSHIPS of CLASSICAL ORDER. Not every bead of this Constructionist Rosary will necessarily be told by every partisan of this attitude, and some of its beads are replaceable: *concrete* by *real* or *basic*, *classical* by some such word as *modular* or *mathematical*, and *spatial* by words like *harmonious* or *proportional* which, though they completely alter the sense as perceived by the uninstructed reader, do not appear to alter the meaning intended by Constructionist theorists.

The buildings which are taken to embody this Mondriaanized architecture are, as the

[1] In a talk on BBC Third Programme in connection with the Mondriaan Exhibition at Whitechapel Art Gallery, September, 1955.
[2] *Mondrian*, Faber Gallery, London, 15s.
[3] Letter to *Architects' Journal*, November 3, 1955.

quotation from Llewelyn Davies suggests, those of Mies van der Rohe, and particularly those on the campus of the Illinois Institute of Technology. The superficial resemblance between some elevations of these buildings and some compositions by Mondriaan is immediately striking, and the design philosophy deployed by Mies may indeed bear some resemblance to the Constructionist Rosary—though it seems likely that the philosophy of the Smithsons at the time of Hunstanton School is a good deal nearer to it. But the historian of ideas must beg leave to doubt that this philosophy was ever Mondriaan's.

He did speak of architecture, from time to time, in order to adduce justifications for his ideas on painting, but these *obiter dicta* hardly make even the outline of an architectonically useful doctrine. Such doctrine, in fact, is easier to find in the writings and practice of other members of the Dutch *de Stijl* group, and it is mostly in their doctrine, not Mondriaan's wordy philosophizings, that the origins of the Constructionist Rosary are to be found.

Not only are the ideas embodied in it non-Mondriaan, they are mostly anti-Mondriaan, and came into *de Stijl's* possession around the time of the Düsseldorf Congress of Abstract Artists of 1922, when Mondriaan had already been in Paris for two years, and was already losing touch with the rest of the group. Without his presence, the minds of *de Stijl* and its leader, Theo van Doesburg, turned more and more to Germany and Eastern Europe for inspiration, and it was from these sources that van Doesburg evolved the programme of Elementarism that provoked a quarrel with Mondriaan, who subsequently left the group.

In general, the ideas of the Elementarist-Constructionist tendency owe their persuasive power both to writings of the 'twenties and to more recent work. *Construction*, for instance, owes its evocative powers in this context mostly to the non-Aristotelian aesthetician Charles Biedermann, who makes Mondriaan one of the hinges in the argument of his book *Art as the Evolution of Visual Knowledge* (1947), even while admitting that Mondriaan was anything but a non-Aristotelian, *Real* or *Concrete Elements* derives on one side from van Doesburg, Naum Gabo and Biedermann for the concepts of *real* or *concrete* (meaning non-representational, or even 'as found' in the Brutalist sense) and on Malevitsch and Lissitsky for the concept *elements* (meaning basic units of both structure and space-division) though the first *Aufruf Zur Elementaren Kunst* to appear in *de Stijl's* eponymous magazine, was signed by Hausmann, Arp, Puni and Moholy-Nagy.

Beyond this point, the ancestry of the 'good words' becomes more diffuse and more complex. The idea of creating spatial relationships involves the imaginative projection of the lines and planes of the art-work into the surrounding void. For this Mondriaan does give some support, for both in the early 'twenties, and again near the end of his life, he expressed the opinion that the lines bounding any rectangle, including the rectangles in his own paintings, could be considered as extending indefinitely, and over-running the edges of the canvas. But at the time that he first put forward this view, he was painting a series of pictures—ten of which appear in Michel Seuphor's new book[4] on Mondriaan—in which the thick black lines are often stopped off short of the edge of the canvas. So when David Lewis says of a Mondriaan painting[5] that 'its proportions relate themselves directly to us physically and to the room around us . . . setting up a wider and wider rhythm of proportions,' he is clearly building up a subjective personal mystique on very slender foundations in the artist's ascertainable intentions.

In any case, the idea of any object, art-work or whatever, having an effect on its surroundings and the enveloping space, is of Futurist extraction, traceable to Boccioni, and the concomitant idea, fundamental to the Constructionist attitude, of space as a uniform, measurable, rectilinear continuum first appears in *de Stijl* magazine over a futurist signature, when Azari apostrophizes invisible staircases and trapezes in the empty air. When van Doesburg himself first speaks of works of art as being co-spatial aesthetically with their surroundings, it is in the Manifesto of Elementarism that precipitated the quarrel with Mondriaan, though this particular tenet was not the main ground of their disagreement.

But it is with the idea of Mondriaan as Classicist that the historian of ideas find himself deepest in confusions and wishful thinking. Of course he certainly was a Classicist in the low-grade sense that all theories of geometrical abstract art can be traced back, in part at least, to the eroded classicism of the *Ecole des Beaux Arts*[6] in the eighteen-sixties. But in post-Wittkowerian English, the word *classical* as a term of praise is usually taken to mean something more gilt-edged than merely holdings in the deferred stock of Academic formulæ.

In what sense, then, can he profitably be called Classical? Hardly at all in the modular mathematical sense. The *catalogue raisonnée* given by Seuphor reproduces only nine paintings that can be called modular in composition; five of these are merely checkerboards, while four depend on the device of squares and their diagonals known in Dutch architecture as *Quadratur en Triangulatur* and employed, it is interesting to note, by Berlage in his Gothicizing,

[4] *Piet Mondriaan*, Thames and Hudson, London, 6 gns. The text of this book is mostly personal gossip, some of it very revealing, but the illustrated catalogue of Mondriaan's work is remarkably full, and destined to become as standard a work as Venturi's catalogue of Cezanne.

[5] op. cit. page 24.

[6] Summed up in Charles Blanc's authoritative *Grammaire des Arts de Dessin* of 1867.

not Classicizing, designs. And none of these nine pictures is one on which his reputation may be said to rest, most of them being unknown outside specialized circles of Mondriaan scholarship.

There are also two instances of Mondriaan pictures with apparent mathematical notations. In one case, as Seuphor pointed out some time ago, these notations are the work of another hand; in the other, recently discovered by Seuphor and reproduced in his book, the familiar notative devices ab, a′b′, etc., are used by Mondriaan simply to indicate those relationships to which he is applying the somewhat unmathematical values *tragic* and *less tragic*. In fact there has been for some time abundant evidence from eye-witnesses and other sources that Mondriaan composed not mathematically, but by eye, adjusting his compositions until they 'looked right.' To this evidence Seuphor adds startling photographic documentation of alterations, scorings-out, deletions and second thoughts, that put mathematical composition right out of the question. What Meyer Schapiro has said of the product must be extended to the process, 'Mondriaan may appear classical, but, in fact, he is almost random.'

Yet, leaving all this to one side, there remains a sense in which he can still be called Classical, or at least Humanist. This is not a sense that can be counted off on the Constructionist Rosary, and it has been no more than suspected from a few odd sayings of his, until it was massively confirmed by the remarkable book[7] on *de Stijl* published in 1956 by Dr. Jaffé of the Stedelijk Museum, Amsterdam. It would be easy to regard this book, heroically written in an English that is not altogether free from misleading translations, and a little too prone to accept *de Stijl* at its own valuation—it would be easy to regard this as merely a provincial Dutch curiosity, but it contains chapters of first-rate art-historical writing that, for studies of twentieth century subjects, surpass even the standards set by the Museum of Modern Art monographs, and the chapters on Mondriaan are of prime importance. When their impact has been fully felt, when their content has been fully assimilated, our view of the man and his art will be permanently altered.

For these chapters set out in full and in detail the relationship between Mondriaan's ideas and those of M. H. J. Schoenmaekers, a former catholic priest turned theosophist (of a sort) who propagated the idea of a mystical geometry of the universe with distinct Neo-Platonic overtones. The connection between Mondriaan and Schoenmaekers has been known for some time, but Dr. Jaffé is the first writer to set it out *in extenso*, quoting chapter and verse. The body of ideas that the two men held in common was aptly summarized by van Doesburg in 1929 as 'The equations of Mondriaan,' which read:

Vertical = Male = Space = Statics = Harmony

Horizontal = Female = Time = Dynamics = Melody

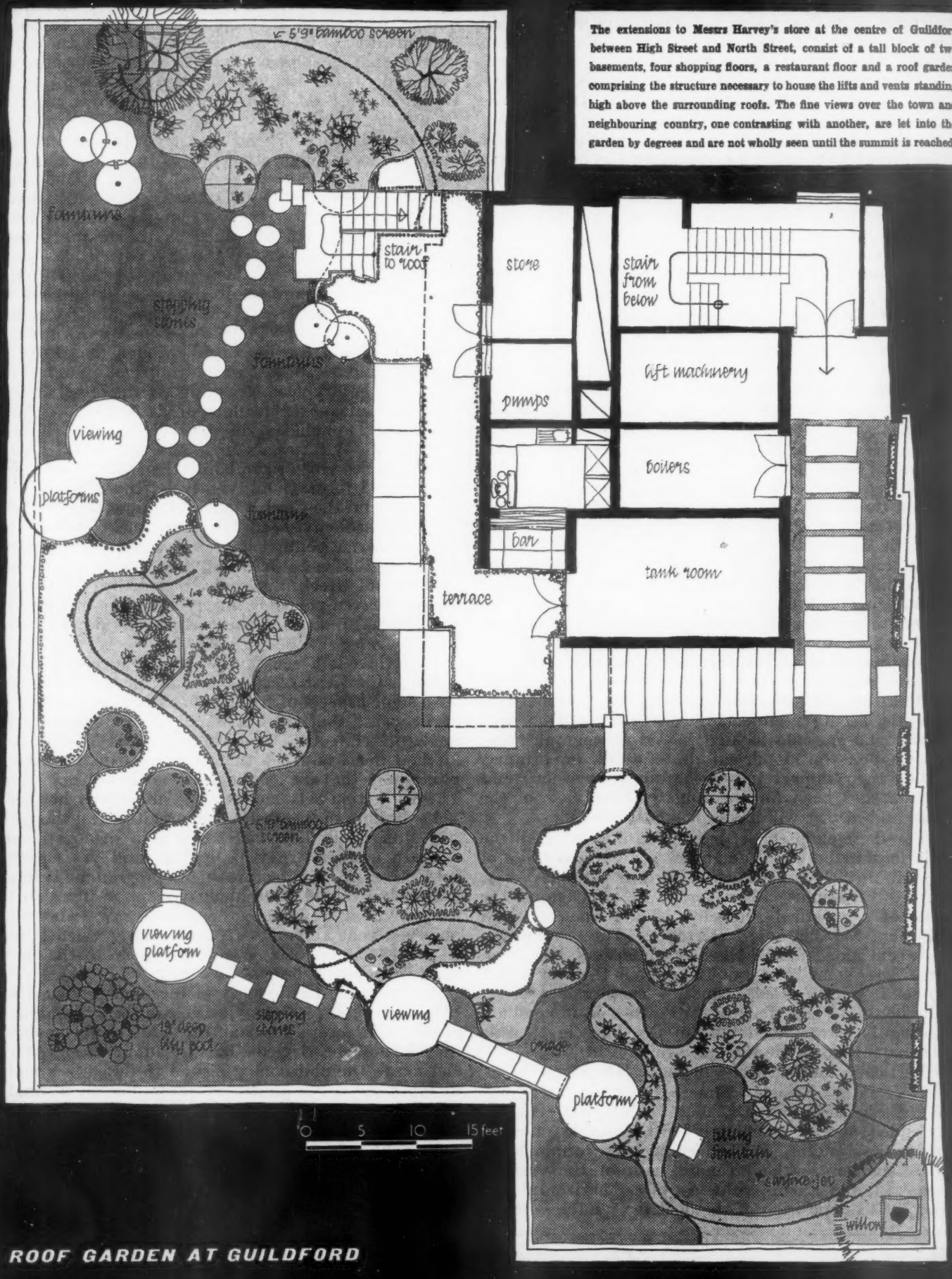
and these series, as Dr. Jaffé points out, can be extended almost indefinitely with suitable pairs of opposities, ending, in Schoenmaekers terminology, with Heaven as the ultimate term of the vertical equation, and Earth as the last of the horizontal list. Dr. Jaffé's exposition of the doctrine reinforces these equations with a mass of confirmatory material, quoted from both theosophist and artist, to show their identity of view, and reveals that even the name that Mondriaan gave his art, that translates so awkwardly into English as 'Neo-Plasticism,' is in Dutch *nieuw beelding*, a phrase taken over directly from Schoenmaekers.

So Mondriaan's art, so long regarded as pure, as abstract, as non-figurative proves to be quite otherwise, for it figures a universe of almost Manichaean dualism, whose ultimate term is the male-female cross—that Adolf Loos, approaching Freudianly from the other end, had identified as the first art-work smudged on the wall of the primitive cave. But clearly, Mondriaan is not to be numbered among the Freudians, his approach is from the standpoint of mediæval scholasticism, even if Schoenmaekers had rephrased it in terms of a pseudo-Copernican Universe in which all vertical lines pass through the centre of the sun. And acceptance of that universe, summed up in an elementary geometrical figure, the cross, clearly puts Mondriaan in the line of descent from those renaissance humanists, discussed in the first chapter of Professor Wittkower's *Architectural Principles*, who sought to describe or symbolize the Deity in a simple geometrical form. Or alternatively, the aspiring vertical line and the passive horizontal line (to give them the attributes envisaged by Schoenmaekers) have the same symbolic content as the gestures of the central figures in Raphael's *School of Athens*, where the completeness of Greek philosophy is signalled by Plato's raised, heaven-pointing finger, and Aristotle's horizontal hand indicating the earth by its down-turned palm.

This then is a sense in which Mondriaan can be called a Classicist of sorts, in that he aligns himself with some aspects of Renaissance Classicism, but it is also a sense that rules him out as an exemplar to modern architects. Those who commend Mondriaan's Method must now see that they are commending a philosophy that may be logical, but is not objective. The distinction between logic and objectivity has been sadly lacking in recent English architectural thought, but Mondriaan may well serve as a demonstration that an aesthetic may be logical, and yet entirely subjective. An architecture whose programme is functional, and rooted in technology, cannot afford to be subjective—as Lawrence Alloway saw when he observed that abstract art, particularly when it has classical leanings of any sort, is hostile to the basic tenets of modern design.

Abstract art, particularly of the kind produced by Mondriaan, has played a vital role in the development of the architectural forms of the modern movement—that cannot be denied—but to admit Mondriaan's Method to the philosophy of modern design is simply to block its development by proposing an ultimate term, the cross, beyond which it cannot pass. There are very good reasons why floors are horizontal and walls commonly vertical, and these underly the equally good reasons why most structural systems and prefabrication methods also have a rectangular format, but to promote these practical considerations to the level of absolutes is to abdicate the freedoms that are the prerequisites of progress.

[7] *De Stijl* 1917–1931, Meulenhoff, Amsterdam. 2 gns.



The extensions to Messrs Harvey's store at the centre of Guildford between High Street and North Street, consist of a tall block of two basements, four shopping floors, a restaurant floor and a roof garden comprising the structure necessary to house the lifts and vents standing high above the surrounding roofs. The fine views over the town and neighbouring country, one contrasting with another, are let into the garden by degrees and are not wholly seen until the summit is reached.

ROOF GARDEN AT GUILDFORD

ROOF GARDEN AT GUILDFORD, SURREY

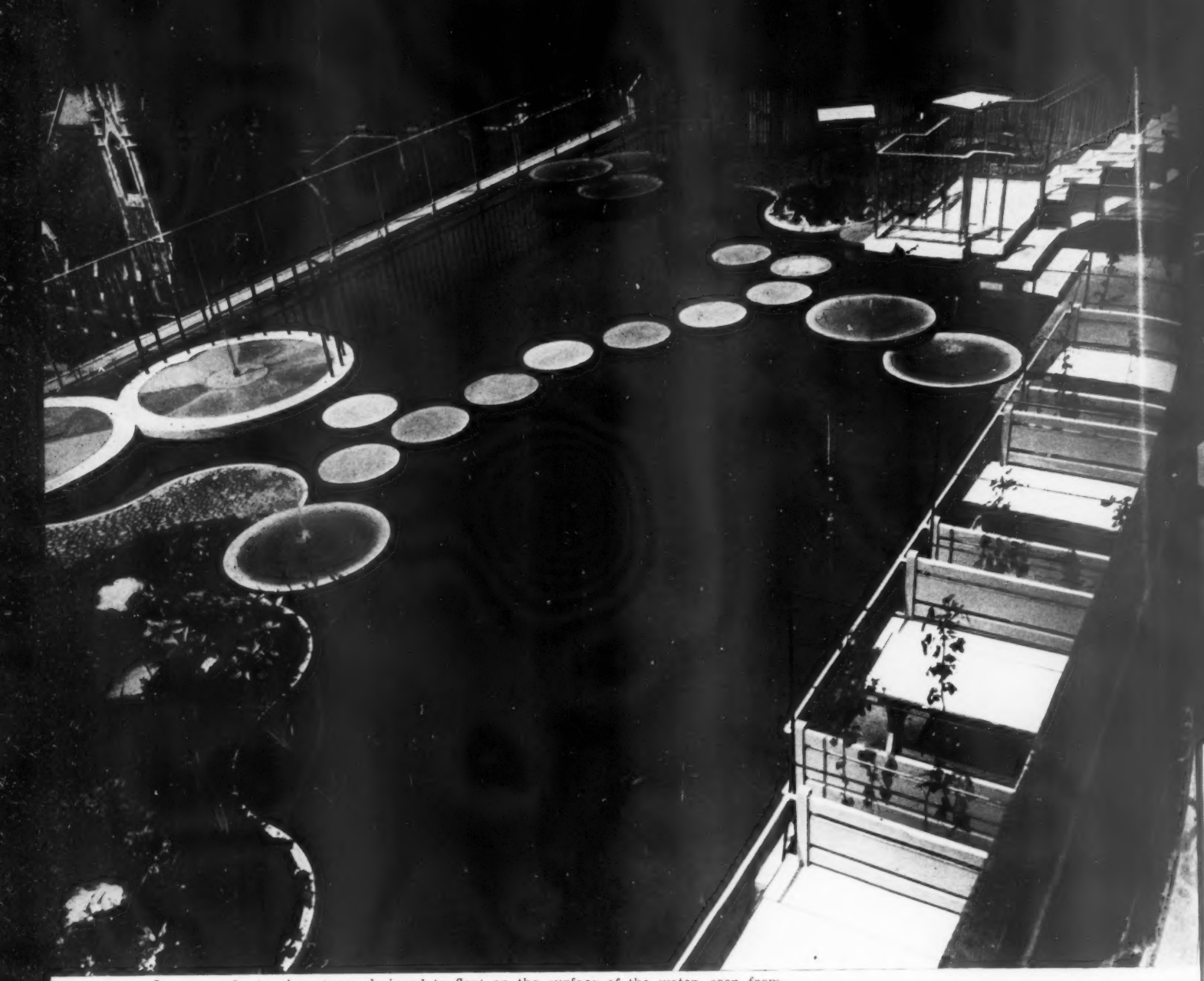
ARCHITECTS | **G. A. JELLICOE AND PARTNERS**

1, the coastline seen from the higher level. The curb is made of a standard quadrant on a standard pattern. The complete circles (left centre foreground and right back) are dry and contain bedding out plants in pots; the remaining land supports moisture-loving perennials in soil automatically kept moist by the adjoining water. The plants are not yet fully grown, and the water level should be higher than in the illustration.

Harvey's Store, where the roof garden is situated, is off the west side of Guildford High Street.

Roof gardens in general suffer from two main handicaps: shallowness of soil and excessive exposure to winds. Unless the structure of the building is specially strengthened, the soil has to be shallow, and tends to dry out and become exhausted very quickly. The general depth of soil in this garden is only 6 inches, building up to 18 inches in two or three places where there is a structural pier underneath. To prevent it from drying out, weep-holes in the curbs containing the flower beds allow water from the pool to seep through and keep the soil permanently moist. In addition, in two places where the soil is deeper, there are sprinklers connected with the pumping plant. The soil used was ordinary topspit, with peat moss and leaf mould for some of the plants.

Plants dislike being blown about, and cold winds dehydrate the leaves. On the other hand, the view is an integral part of a roof garden, and those which are surrounded by walls, with a few look-out holes, evade the issue. Here the garden—in most cases the water—runs out on two sides to the parapet, which is topped by a handrail made as slight as is compatible with safety. Some protection from the north-east is given by



2

2, stepping stones designed to float on the surface of the water, seen from the higher level; these echo the water lilies that have not yet matured. (See 5.)

the structure housing the lift machinery and water tank. On the east side is a 6-ft.-high screen of diagonally placed wooden slats (originally intended to be armoured glass, but this proved too expensive). To give some protection from south and west, curving screens of bamboo canes 5 ft. high enclose the flower beds.

The permanent planting in the main beds was controlled by two factors, the moisture and the shallowness of the soil. Few shrubs could be used and of the three trees (all willows), two are planted in large tubs placed behind the screens. All the planting is such as is found in water gardens: *Iris sibirica* and *Kaempferi*; various primulas, particularly of the candelabra type, astilbes and spiræas; mimulus; hemerocallis; hosta; trollius; calthas; ferns, etc., plus a few larger plants such as *Gunnera manicata*, *Peltiphyllum peltatum*, *Lysichitum americanum*, planted more in hope than faith. Linked to the beds containing the permanent planting are four large round waterproofed containers, designed to hold a succession of plants in pots. These ensure that there are at least four large patches of colour all through the season. To break the line of the curb retaining the flowerbeds, certain aquatics (*Iris lævigata*, *Pontederia lanceolata*, water musk and forget-me-not, etc.) are planted in small pockets of earth projecting from the curb, but below the surface of the water.

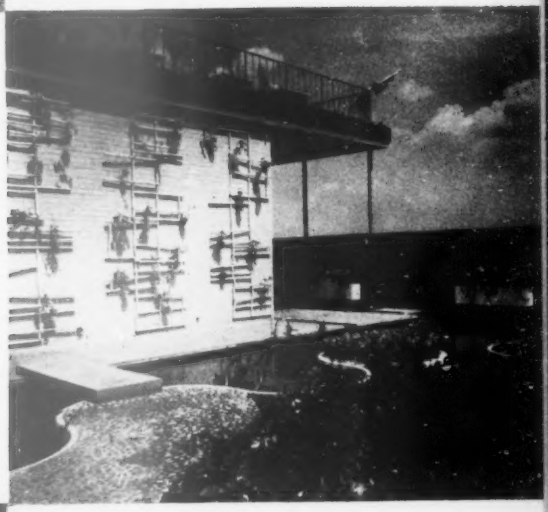
The depth of the water in the pool is 6 inches. The floor is covered with different coloured gravels, to give an impression of varying depths. Shallow pans containing water lilies and various aquatics (*Scirpus zebrinus*, *Aponogeton distachyum*, *Calla palustris*, etc.) are scattered in different parts of the pool. The water is kept clear by establishing a balanced ecology with fishes, snails and submerged oxygenating aquatics.

The fountains are made of ¼-in-thick moulded fibreglass, 4 ft. 6 in. in diameter. Estimates were obtained for similar sized bowls in hardwood and precast concrete and the fibreglass showed a considerable saving. The tilting fountain is of copper with galvanised tubular supports: this was designed to ensure a spasmodic flow over the small weirs of the cascade also to help prevent the water from being too static. A secondary circulating pipe is located at the entrance for the same reason.

ROOF GARDEN AT GUILDFORD

3

4

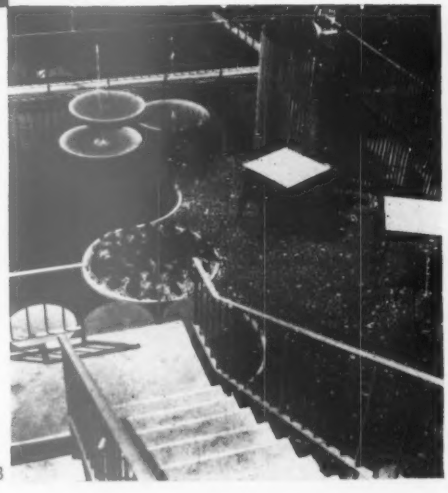


5

3, the stepping stones from the foot of the stairway leading from the upper café.
4, lower café and balcony over, the one associated with the immediate water, the other with the view.
5, the south wall, of which the decoration can be changed at will, and is designed by Messrs. Harvey.
6, steps from lower to upper café. The total height is about 15 ft., and to avoid monotony and disinclination to ascend, the height is gained by a varied progression of steps and ramps. The seats and tables beside the water are in compartments separated by ivy grown in boxes one foot deep, and trained over light metal frames.
7, although the design is intended to link with the landscape on all sides, the principal link is the reflection of the sky in the water.
8, looking down on the circles: the fountains are of fibre-glass: while the water is intended to mirror the sky, the circles embody the idea of the planets spinning through space.

6

7



8

Once a label for the Collegiate Gothic of the provincial universities, the term *Redbrick* may well become a faintly opprobrious label for the dim, stodgy and inappropriate accretions acquired by British universities all over the country in the last quarter century—accretions that range from mere academic subtopia, to gratuitously monumental developments like that at Queen's University, Belfast, left. But there are signs that academic patronage is awakening at last to the possibilities of a more adventurous architecture and more sympathetic planning—Basil Spence's proposals for Southampton are seen above, and equally promising schemes are in hand for Cambridge, Sheffield, Leicester and Exeter.

UNIVERSITIES

The idea of a University is one of the greatest inventions of Western culture, and one of the most diffuse—a community of learned men and a body of scholarly aspirations, linked to society at large by bonds that are valued, but rarely defined, ever-present but changeable. Because of this mutability and lack of definition —themselves a vital part of the university idea—the architectonic form of the university is equally variable, as Dr. Pevsner points out in his historical study, which begins below. But because both form and social relationship are undefined, their importance is often overlooked, with the disastrous consequences discussed by Lionel Brett on pages 240-251.

1 yesterday

by Nikolaus Pevsner

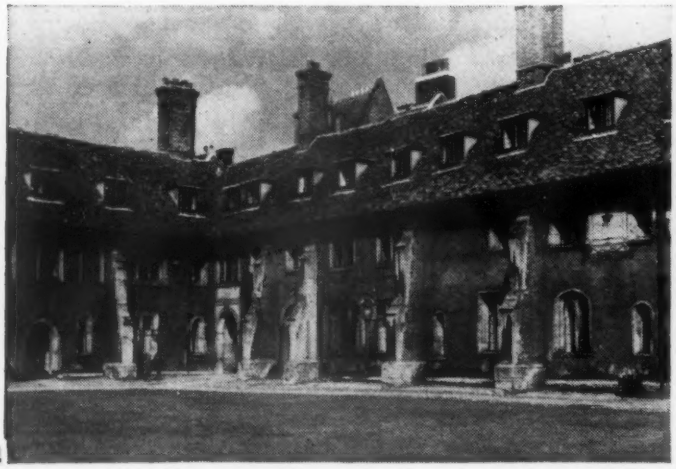
The origin of universities is dark. All that can be said for certain is that they started in Italy in the eleventh and early twelfth centuries and that they served specialized purposes. The earliest seem to be Salerno in the south and Bologna in the north, the one famous for medicine, the other for law. Up to that time and still throughout the twelfth century, higher education was the prerogative of monasteries and cathedrals. The syllabus covered the seven liberal arts, consisting of the trivium and the quadrivium. The trivium was grammar, rhetoric and logic, that is, the Latin language, an acceptable Latin style and the technique of argumentation. The quadrivium was arithmetic, geometry, music (that is the theory and practice of mathematical harmonies and proportion) and astronomy. After seven years the study of theology began over and above the liberal arts. This syllabus shows at once what needs the new universities were to serve. They were not directly under ecclesiastical control and so could concentrate on secular subjects. Bologna was made great by Irnerius, the jurist who died in 1130 and whose most famous book is a textbook for notaries. Universities were indeed the outcome of a civilization which by the twelfth century had grown too complex to be administered by properly trained people only at the highest levels. Plenty of trained clerks were necessary. Correspondence grew, even in private business. Moreover, scholasticism in the purely scholarly field is connected with a rediscovery of Aristotle's refined technique and wide range of research. Here also the cathedral and the cloister were no longer enough to satisfy demands. The fame of the university of Paris, about as old as Bologna, was indeed in the field of scholastic philosophy. What Irnerius was for Bologna, Abelard was for Paris. He died in 1142.

A university was originally called a *Studium* or *Studium Generale*. The word *Universitas* began to replace it in the course of the thirteenth century (at Oxford first used in 1240, in Paris in 1261), but never replaced it entirely until after the end of the Middle Ages. *Universitas* does not refer to universality of teaching but to the sum total of the teachers. The university of Paris meant the group of people who were able and soon—on the strength of their degrees—licensed to teach. The universitas was thus a guild like other guilds. As such what would it have needed in the way of accommodation? Very little. Hardly more, indeed, than a private room large enough for pupils to assemble in and be taught. But as communal living came so much more naturally to the Middle Ages than to our age, it was clearly only a matter of time for teachers to move together and for students to move together. There was in addition to the general liking for a communal life also the argument of protection against extortionate rents which would become topical especially in smaller towns than Paris, say, at Bologna or Pisa or Padua, as they gradually became

university towns first and foremost. But common accommodation needed finance and it was only when universities had proved their usefulness that money came forth. If universities in the course of the thirteenth century all but replaced cathedral and monastic schools an additional reason is, of course, also the general trend of the High Middle Ages—the term used in the sense in which we speak of the High Renaissance not in that which the French mean by their confusing *haut moyen-age*—towards the town and the town-life and secular achievements.

So a special university architecture starts not with teaching quarters but with living quarters. We now speak of the Sorbonne, meaning Paris University, and forget that the Sorbonne was originally no more than a college for students to live in, established in 1256 by Robert de Sorbon, chaplain of Louis IX. By the end of the fourteenth century Paris had more than fifty such colleges, most of them reserved for students from one particular region or nation (Bayeux, Navarre, Lombardy, Scotland, etc.). The first statute of the university of Oxford dates from three years before the establishment of Dr. Sorbon's college. Priority among Oxford colleges is controversial between University College, Merton and Balliol. William of Durham, who died in 1249, left money in his will for the maintenance of ten or more masters of art studying divinity. This is the origin of University College. John de Baliol seems to have paid for poor clerks about 1260, but the college was not incorporated until 1282. Walter de Merton founded his college in 1264 and moved it to Oxford in 1274. It received its statute of incorporation in that year. Peterhouse, the first Cambridge College, was founded by a bishop of Ely in 1281. However, these English colleges were not created to house students, but to house teachers. They were, in fact, colleges exactly as one speaks of a college of priests serving in a collegiate church, or, say, of the College of the Vicars Choral at Wells. And just as these vicars were given by Bishop Ralph of Shrewsbury in 1348 a little street of their own with dwellings for each of them and in addition a communal hall and a chapel, so the accommodation which is familiar for colleges in English universities became usual in the fourteenth century. Old Court, Corpus Christi College, Cambridge, 1, is the best surviving example. It dates from *c.* 1352. Oxford has no quad as old, though fragments at Merton date back to about 1300. But Oxford made another contribution before the fourteenth century was over, the contribution which finally settled the character of the English college. At William of Wykeham's New College, founded in 1379 and opened in 1386, students and staff lived together and tuition was given inside the college. The college was also the first aiming at a unified monumental architecture. There is no equally monumental academic building of that date remaining anywhere else in Europe. Meanwhile, English students had also taken to living in hostels, but none of them survive. What does survive in England, however, and is of great European interest, is some of the buildings erected specially for lecturing in the fourteenth and fifteenth centuries. For by then the universities had outgrown the stage where private rooms of teachers were large enough for the whole of the activities of the university which, after all, included disputations and degree ceremonies. Still, university buildings needed not much space. Cambridge built its divinity school between *c.* 1350 and *c.* 1400. It forms part of the Old Schools quadrangle, between King's Chapel and the Senate House. The other ranges went up in *c.* 1430–60 (West; for Canon Law), 1457–70 (South, for civil law and philosophy and for the library) and 1470–4 (East; this is now replaced by the pretty Palladian building of 1754–8). Oxford also built a quadrangle, but took longer over it. It also started with the divinity school. Duke Humphrey's Library lay over it. The building is of 1426–*c.* 1480 and far statelier than its opposite number at Cambridge.

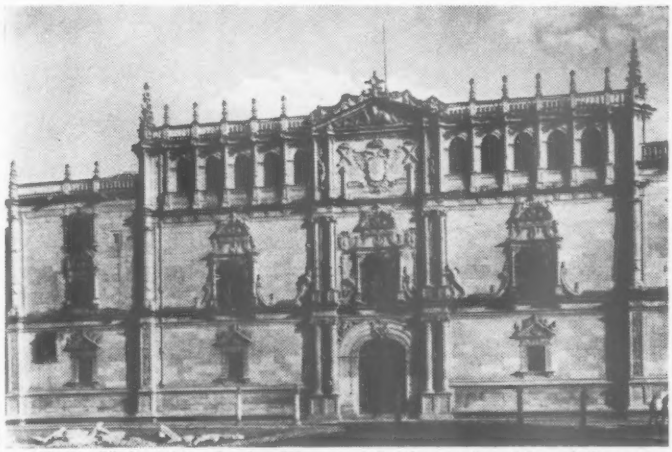
Neither the accommodation nor its arrangement was specifically English. The Grandes Ecoles, that is the university, at Caen, founded in 1436, had a façade about 250 feet long, with a *salle des arts* and *école du droit* on the ground floor, the *salle de théologie* and *classe de médecine* on the first floor, and the library on part of the second floor. And at Cracow a rebuilding was begun in 1494 and this extended round a courtyard with a cloister walk all along the ground floor, 2. It survives, though much restored in the nineteenth century. It had the lectoria on the ground floor, and



1

2

Courtyard planning gave the medieval university something of the quiet and community life of the cloister. The old court of Corpus Christi, Cambridge, exemplifies the English tradition, 1, *while the arcaded court of Cracow,* 2, *begun* 1494, *was flanked by lecture halls and living quarters.*



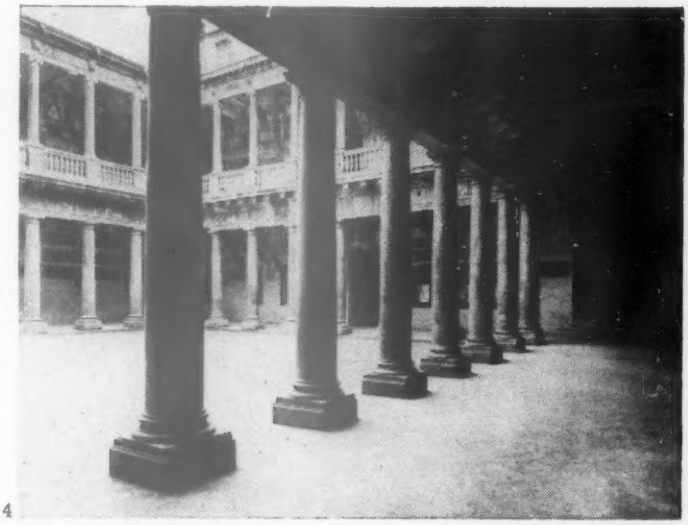
3, *Alcala University, Spain, like several other universities of the same period (it was built in* 1508) *has its main organs grouped in a large single block presenting a monumental façade to the outside world.*

larger halls and living quarters for masters on the first.

Cracow University had been established in 1364. The later fourteenth and fifteenth centuries were the great university-founding centuries. Of the twelfth and thirteenth there are only the Italian universities (eight of them) and Paris, Toulouse and Montpellier in France, Palencia and Salamanca in Spain, and Oxford and Cambridge. In the Holy Roman Empire Prague came first—in 1347. Then Cracow followed in 1364, then Vienna in 1365, Heidelberg in 1386, Cologne in 1388, Erfurt in 1389, Würzburg in 1402 and Leipzig in 1409. Seven more universities were founded in Germany before the time of the Reformation, five in Spain, six more in France in the fourteenth and six more in the fifteenth century. Three Scottish universities date from the fifteenth century (St. Andrews, Glasgow and Aberdeen). Louvain dates from 1425, Basle from 1460, Uppsala from 1477, Copenhagen from 1479, Hungary had one fourteenth and one fifteenth century university and so on.

It is hard to visualize now what all these universities looked like. They certainly did not dominate their towns anything like those of Oxford and Cambridge. They all seem to have had colleges called *collegia*, or a number of other names. But the purpose of, and accommodation in, these colleges differed widely and, until specialized research has gone through the whole of the available material, not only in books but also in original documents, no generalizations can be made. The Collegium Carolinum founded by the Emperor Charles IV at Prague in 1366 was for *magistri* only; so was that added by his successor Wenceslas in 1380. At Heidelberg, in 1393, the Collegium in der Bursch of 1393 had teaching rooms for philosophy and theology and rooms for students. At Leipzig two colleges were established at the foundation of the university in 1409. They were for masters and students together. A third college of 1504 to 1515 had rooms for the Faculties, the lectures and thirteen rooms to let. The College of St. John Evangelist at St. Andrews of 1419 was for teachers under a rector, but the Pedagogy of 1430 was for the Faculty of Arts and residences for students. The Pedagogy of Glasgow of 1453 had teaching and meeting rooms, a library and rooms for teachers and for students. King's College at Aberdeen (1505) housed the staff and thirteen students. At Cracow there were living quarters for teachers only and not for students. At Pavia, on the other hand, even as late as 1564 and 1567, Cardinal Ghislieri and Cardinal Charles Borromeo built big special hostels for about 90 students each.

The scale and monumentality of university buildings in Italy had by that time increased enormously. The architectural type for the university as against the college is a square large block with a square courtyard with cloister galleries on one or two floors. Thus Jacopo Sansovino built at Padua, the university of the Venetian domains, beginning in 1542. The courtyard, 4, was completed in 1547, the façade in 1552. Thus Bologna received as the permanent residence for the old university its Archiginnasio in 1562–6. Thus Pavia, founded by the Viscontis of Milan in 1361, was rebuilt as late as *c.* 1770 by Piermarini and Pollak. Identical in type are the Archiepiscopal Seminary at Milan of 1570 and the Brera 5, also in

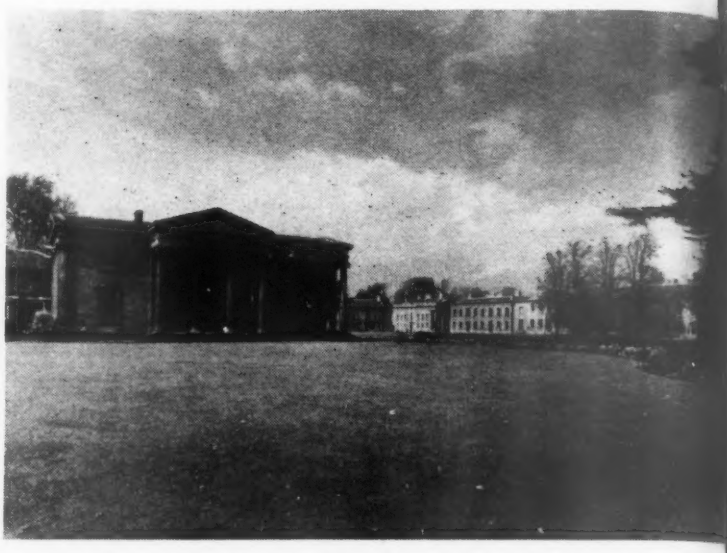


4, *The large unified University-blocks of the sixteenth century often had imposing interior courts grander in scale and different in intention to earlier courtyard types;* 4 *is Sansovino's at Padua, of* 1542, *and* 5 *is the Brera Milan, built by Ricchini in the last years of the same century.*

Milan, begun in 1591. The Brera was built as a Jesuit college. So was the present university of Genoa with its fine courtyard (by Bianco, 1623, etc.). The architectural distinction between university and religious college would in fact not always be easy at this time

in Catholic countries, if it were not for the fact that Jesuit colleges and other seminaries were residential, and universities are not. The type in any case, architecturally speaking, was simply that of the Renaissance palace, used for instance with the same two-storeyed colonnades in the Palazzo Venezia in Rome as early as 1458, the Cancellaria in Rome at the end of the fifteenth century, and in the later sixteenth by Pellegrino Tibaldi in the Archbishop's Palaces of Milan (1570) and Bologna (1575). Whether this new Italian type of university building is derived from such secular sources or rather from the monastic cloister cannot be decided. In any case it is doubtful whether it ought to be called the Italian type; for such square palaces with cloister courts were designed in Spain earlier than in Italy. Alcalá, 3, dates from 1508 and in its present form, given it by R. Gil de Hontañon, from 1543, and Oñate from 1545.

In England large, monumental and unified premises for universities were still unknown at that time and remained unknown until University College, London, was built in 1827–9. To the fifteenth century buildings of Oxford and Cambridge little was added—nothing at Cambridge, and at Oxford only the ranges which, with the divinity schools, form the Old Schools quadrangle, 6. They date from 1610–*c.*1630 and house meeting rooms, rooms for examinations, etc. After that came Wren's Sheldonian Theatre in 1663–6, the museum for Elias Ashmole's collections in 1679–83, the building for the Clarendon Press in 1711–24, and the building for the overflow of books of the library in 1739–49, which is known as the Radcliffe Camera. Cambridge remained satisfied with the old quadrangle, until Gibbs's Senate House went up in 1722–30.



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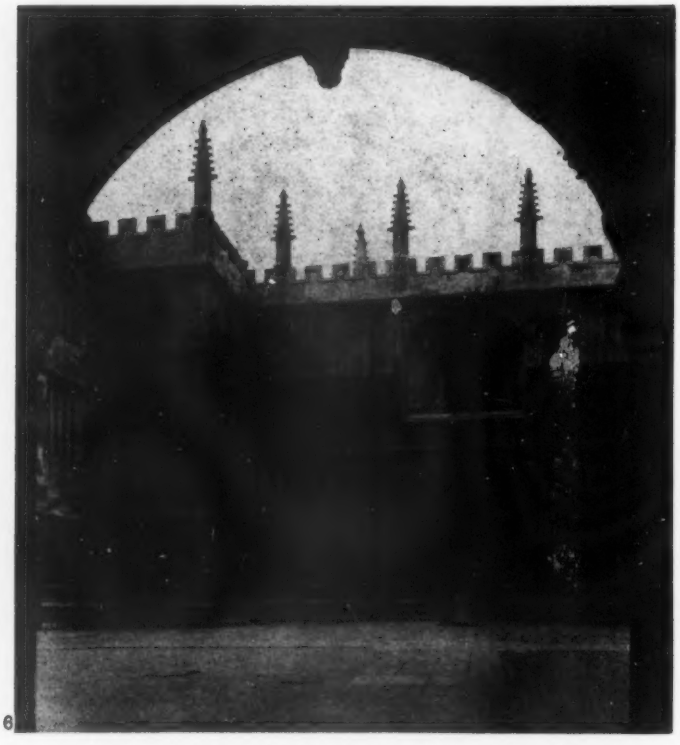
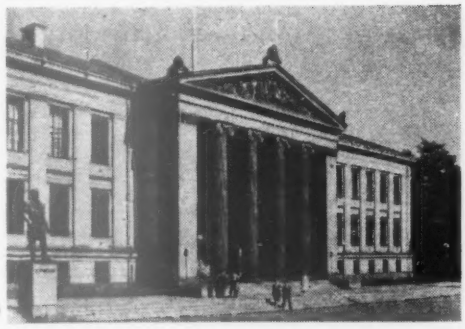


6

6, The Old Schools Quad at Oxford, the first of the distinguished series of seventeenth century additions to the University, and the last—it was begun in 1610—Gothic-Survival structure there of consequence.

In the intellectual development of Europe the seventeenth and early eighteenth centuries are the centuries in which experimental science succeeded in establishing itself, as the fifteenth and sixteenth had been the centuries of humanism step by step defeating scholasticism. The architecture of the universities reflects little of these changes, except for the arrival and modification of Italian and Roman forms. Nor did the structure of the universities as such change as one might expect. They remained professional schools, while humanism preached the ideal of universal man, of Count Castiglione's perfect *cortegiano*, or Rabelais's . . . Francis Bacon indeed in his *Of the Proficience and Advancement of Learning* says that the 'dedication of colleges to the use only of professory learning has been prejudicial to states and governments. For hence it proceeds that princes when they have to choose men

Oslo University's Domus Media, 9, completed in 1853 by C. H. Grosch, is one of the purest examples of a neo-classic university (Schinkel corrected the design) but the neo-Classical period's main contribution to University design was picturesque landscaping, applied to a single college, by Wilkins at Downing College, Cambridge, 7, in 1807, and by Thomas Jefferson to a whole university campus, 8, at Charlottesville, Virginia.



9

for business of state find a wonderful dearth of able men around them; because there is no collegiate education designed to the end that men naturally so disposed might give themselves especially to histories, modern languages, books of policy and civil discourse, whereby they might come better prepared and instructed of offices of state.' This 'universality' for which Bacon, himself James I's Lord Chancellor, pleaded became indeed the principle governing the education imparted by Oxford and Cambridge, and 'civil discourse' has ever since played a part in these universities, envied but never seriously emulated by those on the Continent.

'Ever since' ought perhaps to be confined to the time from the seventeenth to the nineteenth century. For although natural science had entered the university in the seventeenth century it did not become a serious competitor of the arts before the nineteenth century. In its various branches of physics, chemistry, engineering and so on, it began to establish its own universities. The Ecole Polytechnique in Paris dates from 1794 as an immediate result of the French Revolution; the Vienna Technische Hochschule followed in 1815, Karlsruhe in 1825, Dresden in 1828, Stuttgart in 1829, Darmstadt in 1836, etc. In other countries, such as Italy, the new needs were satisfied by the universities themselves. England was exceptionally slow, and Oxford and Cambridge slowest. Cambridge whose international reputation is now so closely linked with achievement in science, did not really seriously start building for these new purposes until after 1860. The Cavendish Laboratory was founded in 1874, and between then and now the sites north and south of Downing Street have been filled far too closely and without any consistent plan by buildings for the sciences. An adequate scale was reached only after the Second World War with the Engineering and Chemistry Laboratories, both twentieth century also in their forms, but both sited too closely to the historic core of Cambridge.

The collegiate scale had in fact become so ingrained in any English university planning that congestion was instinctively felt as a virtue—with total neglect of the figures of users of colleges as they had been before the later nineteenth century. Yet as early as 1807 William Wilkins at Cambridge had shown the possibility of a new type of college quadrangle in which the discoveries of English landscape layout of the eighteenth century would be incorporated. Downing College, 7, is the pattern for the American university campus, and what Wilkins had shown for one college, Thomas Jefferson in his University of Virginia at Charlottesville, 8, transferred to the whole university. He called his ideal 'architectural democracy' and the 'academical village.'

The campus has become one element of university planning in the twentieth century, the collegiate precinct for a variety of uses is another, the large block for a single purpose yet another. Their advantages and disadvantages, their interaction, their application with or without architectural sense or refinement is the subject of the pages to follow.

Between 1938 *and* 1956 *the number of full-time students in British Universities rose from* 50,000 *to* 84,000 *and in the next decade it is expected to increase to at least* 106,000. *The accommodation of this increasing student population, and the teaching facilities it will require, represents a building programme running at a rate in excess of* £12,000,000 *a year, and it is essential not only that this bulk of building should be achieved, but also that it should be the right kind of building—the kind of building that makes a university and not just another teaching institution. In the article below, Lionel Brett examines what has gone wrong with our University architecture, and what needs to be done to redress its upset balance.*

2 *today*

'Redbrick is in many ways riddled by pretence. At every level there is a strong temptation to fraud and Lucky Jimmery. The student is tempted to learn his lectures by heart; the lecturer to dish out the text-book; the professor to fiddle the syllabus; the Senate to impress the Mayor and Corporation by putting up vast and pointless buildings; the Mayor and Corporation to be impressed, and the Vice-Chancellor to talk nonsense. In fact, though the response to temptation is not yet so highly organized, the temptation itself is probably stronger than at the older universities. And most of it is caused by a single doubt: is the place a university at all?'

MARY SCRUTTON

At once it becomes necessary to postulate standards, to decide, in other words, what a university ought to look like. And at once we run into the central difficulty that there is no single tradition of university architecture. The Church traditionally gathers the Christian community about its skirts and points its finger to Heaven; the school has its equally magnetic place in the township; the hospital, functional, austere, lies aloof with its back to normal life and its face to the sun. But the University has no conventional visual relationship with town, city or region. In the Western world as a whole, as Dr. Pevsner has shown, it may, as in Italy, be a great block of lecture rooms or laboratories, cliff-like on a narrow street. It may model itself on Oxford and Cambridge, cellular, inward-looking, with bright velvet lawn momentarily glimpsed through the porter's lodge. Or it may lie at ease in the landscape, a true 'cité universitaire' like Charlottesville or Aarhus—adaptations of the English landscape aesthetic to the layout of buildings. For simplicity we shall call these alternatives the great block, the collegiate and the campus traditions.

Notice that what distinguishes these three traditions is not how and where the students are taught, but how and where they live. Thus, in the case of the great block, they all live out, as best they can; the university itself provides teaching and research space, administrative offices, possibly social facilities, but no more. In the collegiate tradition, ideally they all live in, withdrawn and medieval, monks in cells. And around the campus they live in a loose, unfortified academic village, outward-looking rather than inward.

This country has its own variants of these alternatives, each variant having an entirely different relationship with its local community.

The first is the pure university town (as Oxford first and formerly, as Cambridge still, as St. Andrew's, purest of all, as Durham until lately). It is a short list, and if there is a British university tradition, this is it. But like so many British institutions, it hardly exists.

The second is what we may now call the 'Planners' Precinct,' and one could sub-divide these academic enclaves into the urban (Edinburgh, Glasgow, Aberdeen, Dundee, Newcastle, Leeds, Sheffield, Liverpool, Manchester, Cardiff, Bristol) and the suburban (Birmingham, Leicester, Hull, Swansea, Southampton). Here is the great mass, and here the typical Redbrick situation.

The third British type is our version of the campus tradition, something quite new for us, the 'university in a garden' (Nottingham, Exeter, Keele, the new Aberystwyth, the new Reading). These rural pioneers, starting from nothing, have the easiest job in one sense, the hardest in another.

In 1945, faced with their first big expansion problem, universities had to choose between the second and the third of these solutions. Wherever possible they stayed in town, anchored there sometimes by enormous and unsaleable Victorian buildings, sometimes by a great teaching hospital, sometimes by convictions of the moral and social value of being at the centre of things. But some surrendered and moved out, persuaded by physical constriction or by economic arguments of the value of a fresh and verdant start.

To all these categories London is the sole exception. With one-fifth of the national university population, eighteen schools (some as large as provincial universities) and twenty-eight medical schools scattered about the London region, it feels in many of its limbs and extremities the growing pains of its emancipated children, and has at its centre in Bloomsbury an urban redevelopment problem of special difficulty and importance. What we shall say of them applies *a fortiori* to it.

The first thing to say is that there is no unique virtue in any particular relationship of a university with its city or township. Each of our British categories has its value, and the more diversity the better. Here, as in the subtopian jungle, the lifeline is: 'Know what you are and be it.' But we must, at this stage, make one generalization for them all, which is that we have grown in this country to think of a university not as vocational but as a place designed to produce (as far as possible) the Universal Man. This may be etymologically wrong, and it may be increasingly

by Lionel Brett

difficult, but it sticks obstinately at the back of the mind of most dons, however deep and narrow their speciality. It follows that university life cannot and must not be a life of studious isolation. For most students it will be their first, and for some their only, experience of a diverse world remote from family and childhood friends. It must be designed to enhance that experience.

In other words, it matters very much how and where staff and students live.

Of life in a 'university town' most people have a cosy Trollopian picture, embracing peaceful quadrangles, coffee between lectures, comfortable landladies who have lodged generations of students and themselves become a university institution, cheerful camaraderie in ancient pubs, small-hour discussions by dying fires—the background a cobbled town where every other house is a lodging and gowns are as common as raincoats. But in 1955, there were about 15,000 undergraduates at Oxford and Cambridge, less than 5,000 in other ancient universities.

How did the other 62,000 spend their lives?

Three-quarters, we know, slept at home or in digs, a quarter in students' hostels pompously called Halls of Residence. Either way, they were likely to be scattered over acres or square miles of urban or suburban streets. And so, like any other workers, they caught the 8.30, heavily loaded with books and notes, distinguished from other commuters only by tired look and hideous muffler. After a morning of lectures, a queue lunch in a clattering canteen, more lectures or lab. or library work, they were due back in their digs for high tea (more rush-hour travel). On such a day, the long journey back for the film society meeting, the lecture on Henry Moore, the jive session in the Union, hardly seems worth while. Much better read by the fire (bob for the meter?) or when that palls there's always the landlady's telly.

The Hall of Residence is, of course, the only possible answer, and with lodgings saturated and student numbers for ever increasing, the number living in Halls must quickly grow, both relatively and absolutely. But these too tend, for obvious reasons, to be scattered in deepest suburbia. Their most likely setting is the leafy ex-prosperous late Victorian or Edwardian suburb. Here in quiet roads of formerly rich detached houses you will find that one of the gravel drives has a neat notice at the entrance. This informs you that it is the property of the university, is called Atkinson Hall, and is a Hall of Residence for Men (or Women). If you explore further you may come upon a whole covey of them, and then if you refer to a town development plan you find that what almost amounts to a residential precinct is developing —perhaps 3–5 miles from the university precinct. Why? Because in rosier days Sir Percival Atkinson, prominent citizen and generous benefactor, gave this house to the university for this purpose. The university, genuinely grateful, accepted it, built a wing of study bedrooms and installed some plumbing, a couple of wardens and as many students as could reasonably be housed (often about 100). Then an astute bursar, keeping an eye on the surrounding property and realizing that its days were numbered, was able to acquire other similar houses at a reasonable price and repeat the process. He then found that he owned several acres of garden which apart from being a liability to maintain would make an excellent site for a brand new 3-storey, red brick, vaguely Georgian hall.

The result is a university as effectively dispersed and concealed as a wartime corps headquarters. This has every kind of disadvantage: visual obviously; social in that there is no magnet like an Oxford or Cambridge college where small groups (whether living in or out) can meet and talk yet avoid the chill of an out-of-hours lecture room; economic in that kitchens and refectories are extravagant to build and staff if they are too remote to be used for lunch as well as breakfast and supper. Less tangible than these drawbacks is the wrong atmosphere of these lonely suburban mansions. The Oxbridge college is a city building; its walls reflect 'the busy hum of men,' yet exclude it from the green interior where a man working by his window sees other men reading or writing or talking or drinking. Unconsciously as he works he is only partly alone, for all around is a small community and right outside is a large one. No Victorian shrubbery or new-Elizabethan parkland will teach him that lesson.

Compactness is all. This still seems the key lesson for English planners—forever over-compensating for past slums. And if this means building high we must do it. A dozen rooms on each of twenty floors and a JCR on the roof—that is the atmosphere for a country-

born student of engineering or medicine with a scholarship to Liverpool or Glasgow. If cost is the obstacle, let money be saved on common rooms, reading rooms, ping-pong rooms, music rooms, quiet rooms—'amenities' British students may have grown to expect from the superfluity of public rooms in Edwardian halls of residence, but which are certainly over-plugged in the Murray Report (1948). The great privilege of university life is a room of one's own. However tiny, it can hold half-a-dozen talkers. For the minority who depend on the 'amenities' the Students' Union is surely the place, and the more compact the university precinct the closer-at-hand it can be.

For this digression into domesticity we make no apology. Administrative buildings are offices, faculty buildings are lecture halls, labs and libraries, students' union and common room buildings are of all shades (depending on their wealth) between club and canteen. These building types, each with its own typical expression, are familiar ground to the architect. But what makes a set of them into a University (and not a technical institute) is the way they are lived in day and night. And the way they are lived in depends on the way they are arranged.

This is the crux. Whatever kind of university one thinks of—whether the continental great block, the collegiate or the campus, whether urban, suburban or isolated in the landscape, whether ivory tower or town-within-a-town—the vital common factor is a sense of community. It can be done in a dozen ways. Aarhus does it in a quiet pastoral setting, Mexico in a vividly urban one. Aix-en-Provence, Durham, Virginia, Cambridge, St. Andrews, are the focus of small towns, Oxford, Harvard, Bologna are the heart of considerable cities. There is no difficulty about it. Universities don't need industry or marshalling yards, back gardens or allotments; universities don't generate their own motor traffic or have to accommodate masses of other people's. None of these disintegrators of civilized urban living have to be grappled with. Universities have the priceless advantage, for the planner, of pedestrian circulation, self-containment, strictly limited size, and buildings of high quality and varied function and outline. Yet of our universities only the four we have mentioned can honestly be said to have made or retained anything, so far, of these advantages.

It is not difficult to list the snags, the excuses, the lost opportunities. Oxford has its industrial elephantiasis and consequent traffic problem; London has its dispersion and formidable site costs; Liverpool, slum-ridden, has to house a large displaced population before it can rebuild; Edinburgh has the George Square problem, Glasgow a chaotic existing layout; Aberdeen, Durham and Cardiff are split in two; Leeds, Hull, Leicester and others are committed to halls of residence miles away from their faculty buildings. Some, like Birmingham, Glasgow, Liverpool, Manchester, have formidably immutable and functionally unsuitable Victorian nuclei. Others, like Keele and Southampton, are still making do with huts and sheds. All presumably have less money than they would like and a very much faster expansion programme than they would have chosen. In circumstances like these it is not surprising that lip-service (one can hardly expect more in a nation dedicated to 'natural' growth) is paid to planning. And for this, on the principle Better Late than Never, we must be grateful. If we exclude Oxford and Cambridge, all but four or five British universities now possess (though some will not reveal) a Master Plan. But often these plans are two-dimensional, at any rate in presentation (Newcastle, Glasgow, Manchester). Often they cover the university precinct only, or part of it (Edinburgh, Leeds, Southampton) and do not picture the university as a living whole. Many are 'under revision' to cope with new expansion targets (Newcastle, Sheffield, Reading). Many are severely axial and inflexible and are already regretting it, or soon will (Manchester, Hull, Swansea, Aberystwyth). Saddest of all are the 'fresh start' universities like Nottingham, Swansea, Aberystwyth, Exeter and Keele, any one of which, within its limitations, could have been an English (or Welsh) Aarhus. But each, for one reason or another, got off on the wrong foot. Exeter and Keele may yet bring order out of chaos, and great things will be expected of Reading, freshest starter of all. But the planning achievement to date is unspeakably dim and dreary.

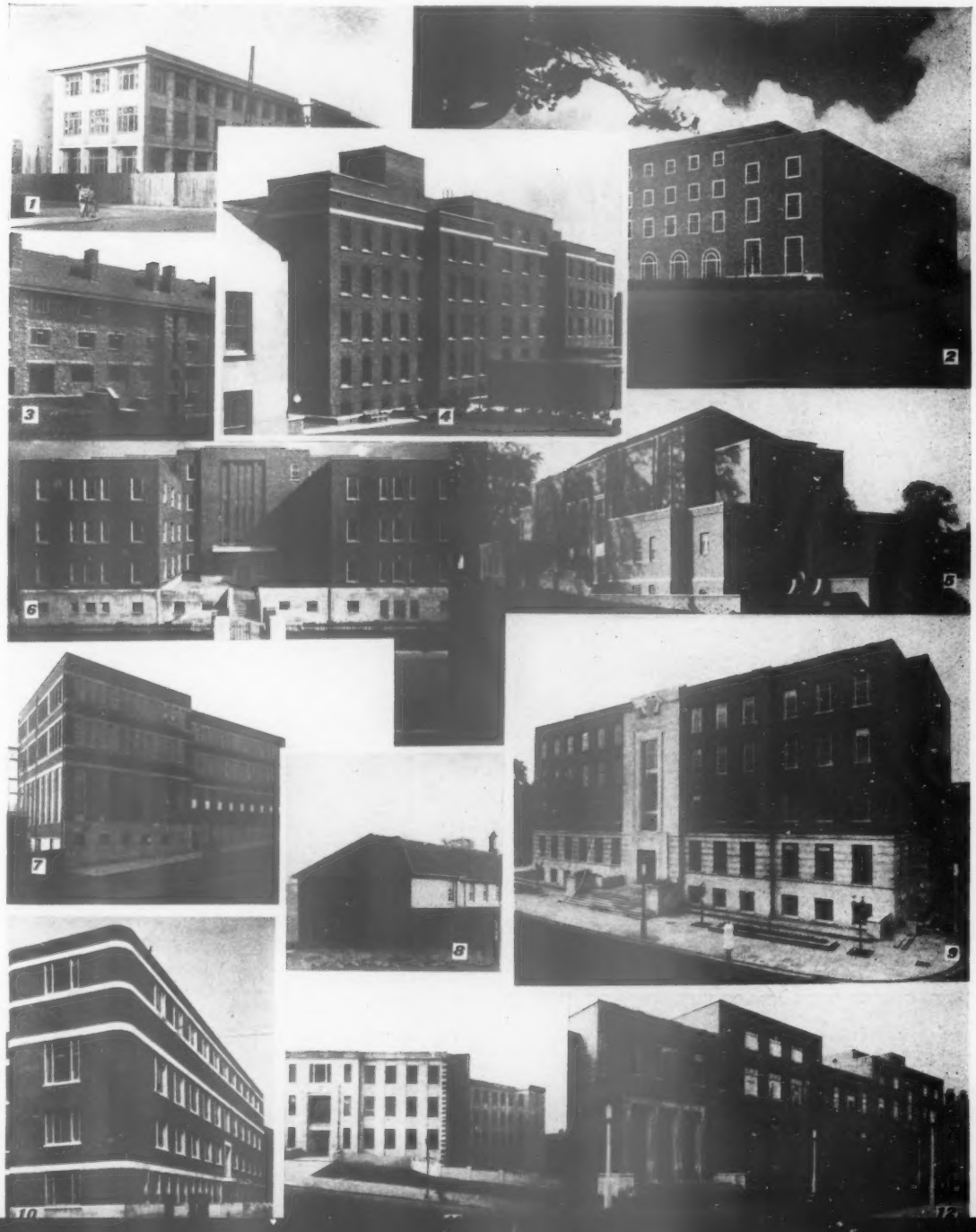
We have already indicated by what criteria we make this criticism. But in fairness to bursars and building committees we must add that we are not surprised at their dislike of Master Plans. Who, having loved Oxford and Cambridge, would not pursue the mirage of organic growth rather than the boredom and pomposity of the sort of planning you could expect between the wars? Nobody in those days, or nobody who laid out university buildings, seems to have realized that in creating a town (of which universities are a kind) what matters a great deal more than the buildings themselves are the spaces between them. Neither the dull axiality of fag-end classicism nor the post-war loose scatter of buildings in parkland are likely to produce spaces of any interest. The former, moreover, is hopelessly inflexible in face of technical changes. The astonishing thing about these aberrations is that they were pursued in the full knowledge of the uniquely lovely growth of the Oxford and Cambridge Colleges, where space has been added to space with the logic yet the freedom of a game of dominoes. What relief to see collegiate planning principles reborn in the latest projects for Edinburgh, Southampton and Cambridge.

To say that buildings matter less than the spaces between them is not, we hope, to say that they do not matter at all. Look at Berkeley Square. A university which has taken the pains to commission a sensitive and imaginative 3-dimensional plan for its development will not wish it realized in second rate architecture. Yet here, too, the record is dismal. Making every allowance for the sour view each generation takes of the one before, it seems impossible to believe that anybody will claim that the period 1900 to 1935, when all but our most senior provincial universities made their first essays in building, was not one of the most mean and vulgar (if one can be both) in British architecture. If we list the stylistic sequence (with typical but never unique examples) we can cover a sad story quickly and avoid the embarrassment of comment.

[*continued on page 251*

The post-war university buildings that appear below are the monumental record of the failure of nerve in academic patronage, envelopes of red brick and stone, enwrapping an entirely vacuous concept of who, what and where a university is. On the pages that follow is an analysis of the main types of university planning—the empty diagrams in which this vacuous concept will be perpetuated unless radical action is taken soon, and the more humane and adaptable approaches that promise an integrated concept of a university and its buildings.

KEY 1, new Unions Building, Manchester. 2, Men's hall of residence, Bangor. 3, Men's hall of residence Stephenson Hall, University of Sheffield. 4, Arts building extension Manchester University. 5, Conference Hall, University College of North Staffordshire. 6, Electrical Engineering building, Manchester University. 7, Engineering building, University of Sheffield. 8, Teaching building, University College of North Staffordshire. 9, Man Made Fibres building, Leeds. 10, School of Architecture, Manchester. 11, Chemistry building, Sheffield. 12, University House, Leeds.

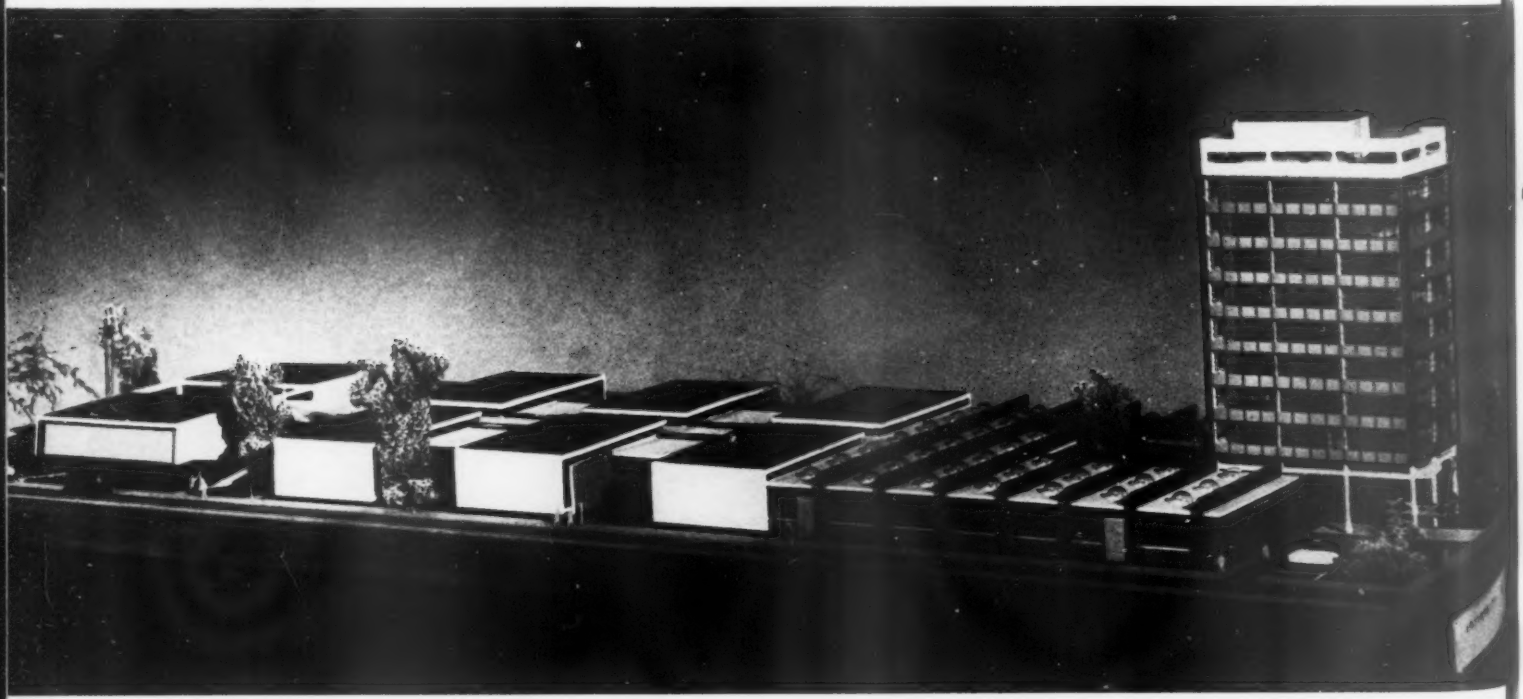


The architectural setting in which most of the growing student population will pursue their studies, outside the ancient foundations of the Middle Ages, will consist of two—or, with luck, three—of the ingredients set out on this page: Convinced Victorian, like Gilbert Scott's Bute Hall at Glasgow, 13, which did at least have convictions about what a University should look like; Academic Barracks, like the Inorganic Chemistry Building at Liverpool, which lacks any ascertainable convictions at all, 14, and—with luck—Sane Contemporary, like Basil Spence's proposed Physics Group, also at Liverpool, 15, which once again reveals convictions about the shape and aspect of a University.

13 *convinced victorian*

14 *academic barracks*

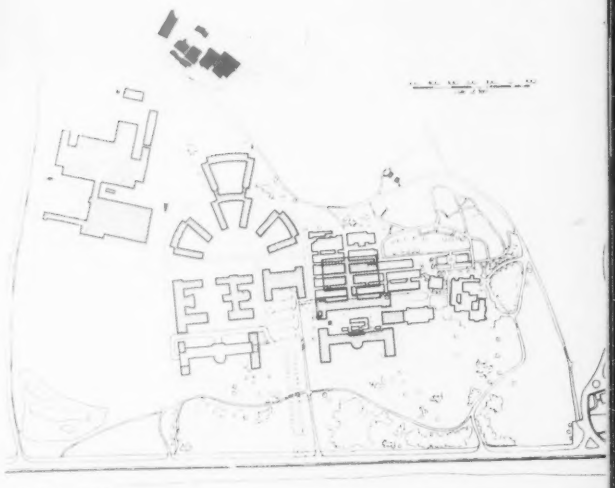
15 *sane contemporary*



University plans fall into recognisable types, some of which make possible the development of a true university community, while others do not. The five main types—axial, isolationist, vertebrate, cellular and reintegrated—are examined on the pages that follow, together with a note on the use and abuse of the landscape.

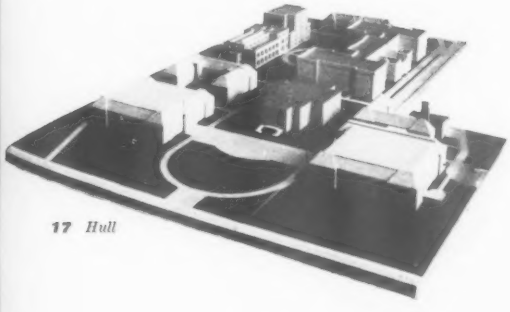
16 *Hull*

axial



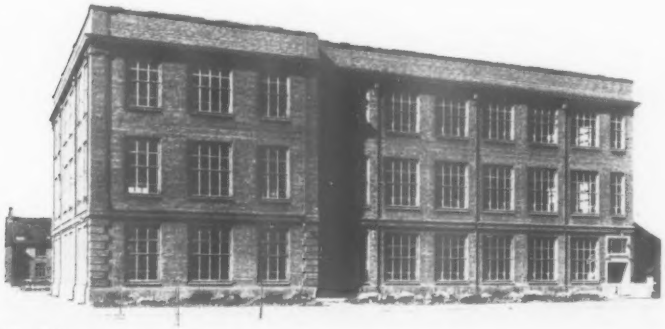
19 *Swansea*

Axial planning, which is fairly typical of the smaller universities, may offer paper elegancies of plan, but restricts organic growth, and imposes ridiculous disciplines. At Hull, 16, the spaces in the plan are apparently to be blocked in axially, as the model shows, 17, but when all the spaces have been taken up, further expansion can only wreck the paper pattern, while in the meantime, partial taking-up of spaces only results in visual solecisms like 18, lopsided across the main axis. The axial planning of Swansea, 19, ignores and spoils a fine natural landscape, and imposes gratuitous extensions to the buildings (on these and other plans, black indicates existing structures; white, structures at present building, and cross-hatched stands for future proposals), while at Manchester, 20, axial planning will introduce excessive open spaces into a plan already burst wide open by traffic arteries.



17 *Hull*

20 *Manchester*



18 *Hull*

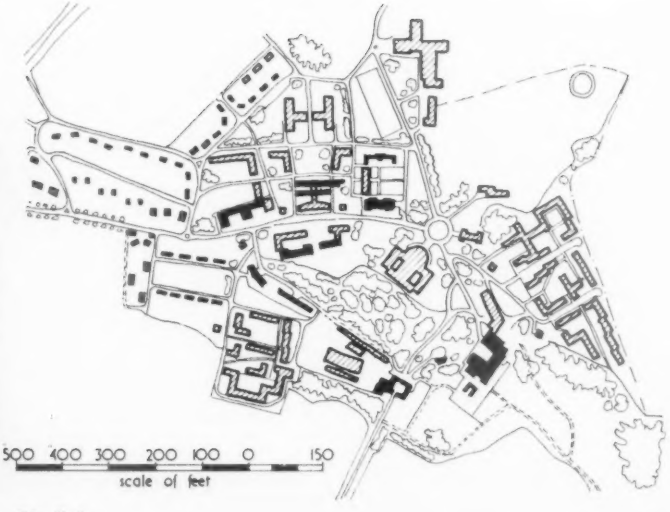
isolationist

At the opposite pole to the axial approach to university design, is that which considers and sites each building in isolation, without reference to its effect on the whole, or—in some cases—the landscape setting. At King's College, Aberdeen, 21, one ill-considered addition crushes against older buildings in the foreground, while the new Chemistry building is lost in the allotments beyond. Reading, 22, is also a scatter-plan scheme, with built and proposed buildings spread across a landscape park in disorder that is not redeemed by sporadic axiality. Keele (the University College of North Staffordshire) is the worst offender on this score, however, with its buildings distributed seemingly at random, 24, and dons' semi-dets. flung out into the surrounding countryside at barely New Town densities, 23. Fortunately there is hope of a new policy aimed to redress some of these wrongs.

21 *Aberdeen*

22 *Reading*

23 *Keele (North Staffordshire*



24 *Keele*

Nottingham

Nottingham is a campus-plan university, the type always most prone to become isolationist, as the scattered extensions in 25 reveal. However, the central area, behind the existing buildings, is to be drastically tightened up and re-landscaped, to the designs of G. A. Jellicoe, 26, though, unfortunately, the rest of the scheme seems likely to be left in its present scattered state.

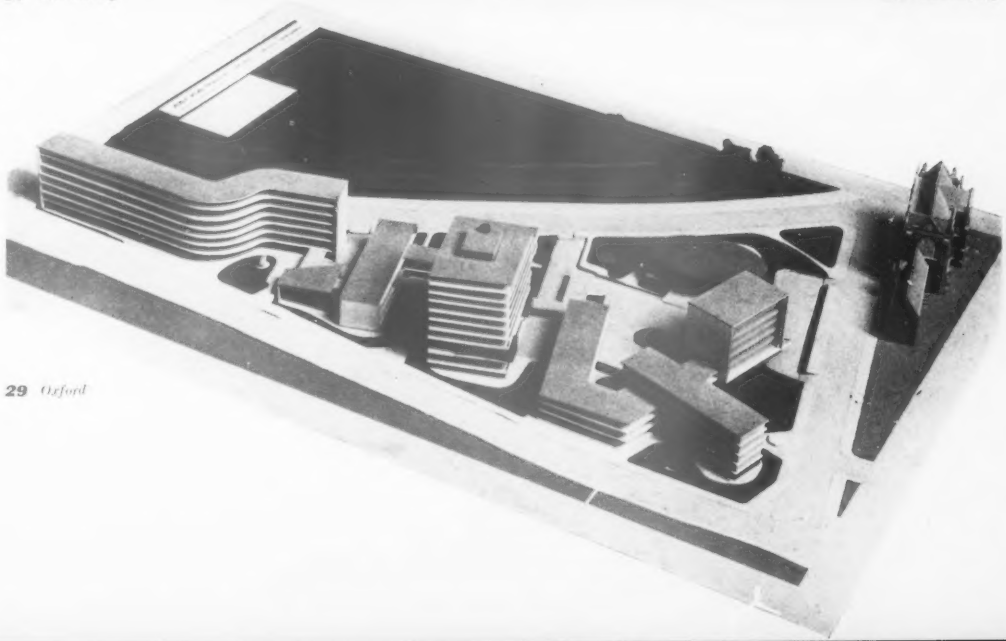
26 *Nottingham*

vertebrate

Buildings distributed along, or connected to, a continuous spine, like beads on a string, may be a suitable plan-form for some types of institution, but not for a university. London's red brick superblocks, 27, 28, underline this basic unsuitability by their manifest impropriety of scale in so delicately adjusted a district as Bloomsbury—they destroy a masterpiece of town-planning without creating a university in its stead. Basil Ward's proposals for the Keble Triangle, Oxford, 29, though praiseworthily bold in idiom for Oxford, extend impending sprawl by the vertebrate layout, whereas what is urgently needed is for the University to be folded back on itself more.

27 *Bloomsbury*

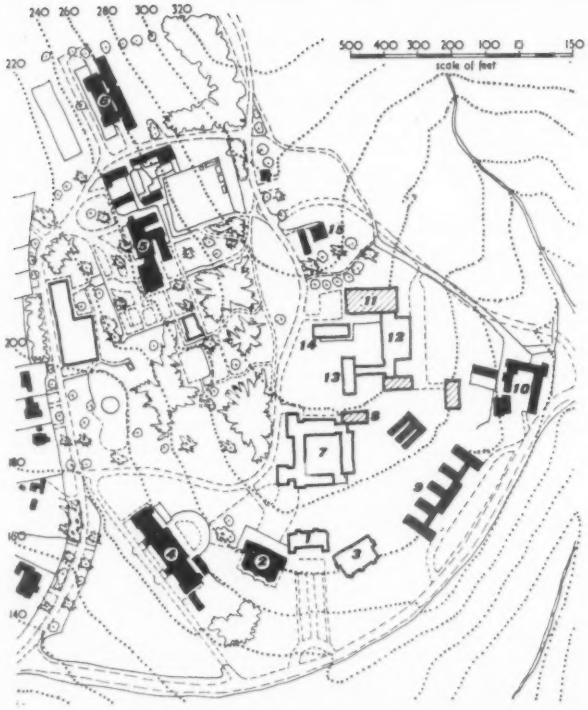
28 *Bloomsbury*



29 *Oxford*

cellular

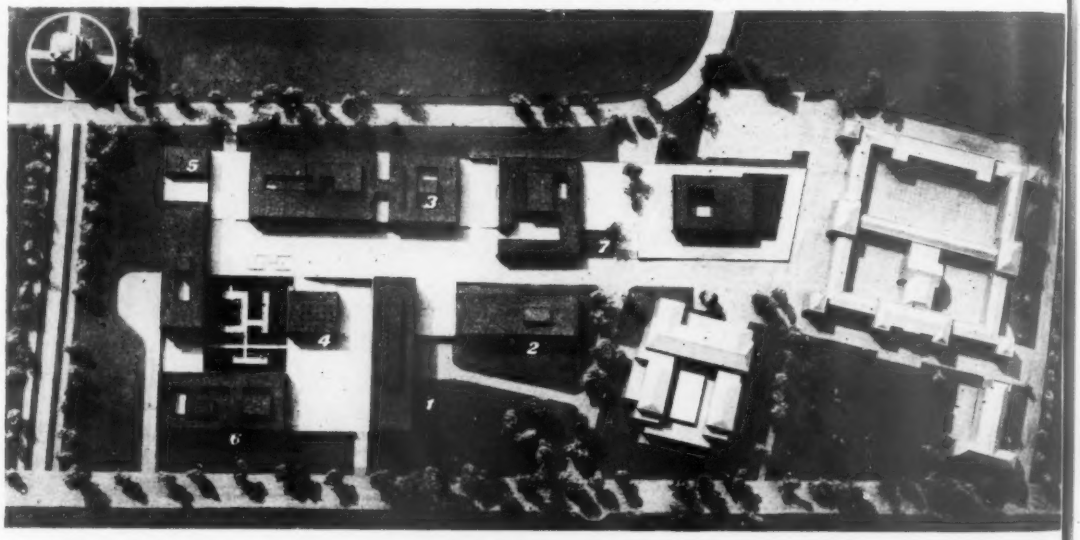
Cellular planning, around quadrangles and courts, is firmly established in the English collegiate tradition and offers, in addition, a technique of piecemeal extension that does not involve a collapse of University scale or the sense of enclosure, nor the commission of solecisms such as 18 (p. 245). Sir William Holford's infill proposals for Exeter, 30, create a university townscape without destroying the qualities of the existing landscape. At Leicester, Sir Leslie Martin's scheme combines an overall Miesian formality, 31, (without the restrictions imposed by axial symmetry) with a cellular feeling created partly by the actual courtyards, and partly by the interrelationships of the blocks themselves. Sir Hugh Casson's layout of the Arts buildings at Cambridge, though different in detail and planning-discipline, 32 and 33, also creates a kind of continuous inner courtyard, with a strong sense of enclosure and sympathetic scale, enlivened by carefully controlled views outwards.



30 *Exeter*

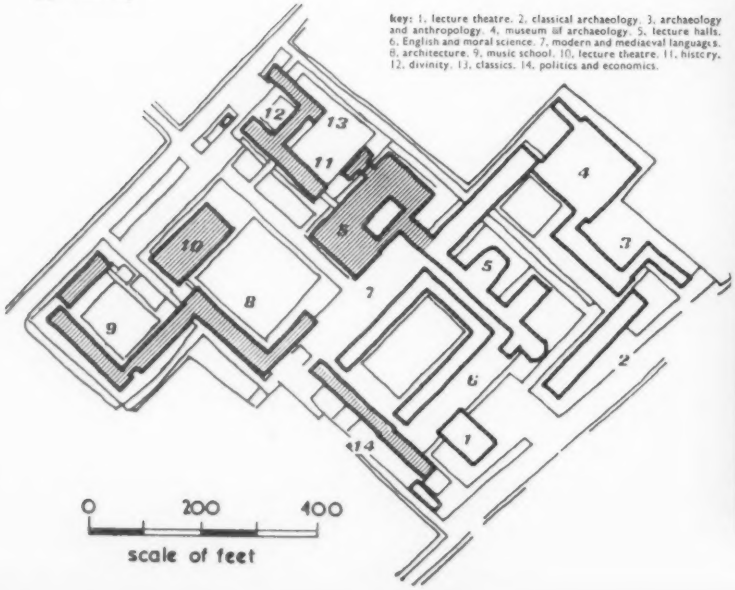
key: 1, chapel. 2, Roborough library. 3, library extension. 4, Washington Singer building. 5, Reed Hall. 6, Mardon Hall. 7, arts building. 8, arts building extension. 9, Hatherly laboratories. 10, Streatham Hall farm. 11, hall. 12, refectory. 13, union building. 14, administration. 15, square court.

31 *Leicester* key: 1, chemistry teaching. 2, chemistry. 3, physics. 4, lecture theatre. 5, mathematics. 6, botany and zoology. 7, tutorial and research.



32 *Cambridge*

key: 1, lecture theatre. 2, classical archaeology. 3, archaeology and anthropology. 4, museum of archaeology. 5, lecture halls. 6, English and moral science. 7, modern and mediaeval languages. 8, architecture. 9, music school. 10, lecture theatre. 11, history. 12, divinity. 13, classics. 14, politics and economics.

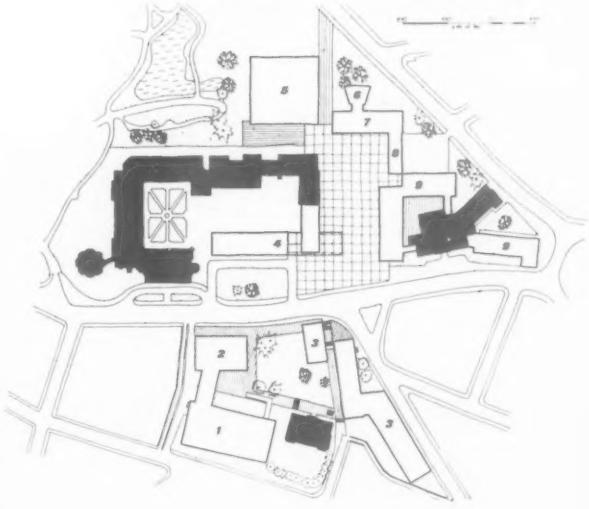


33 *Cambridge*

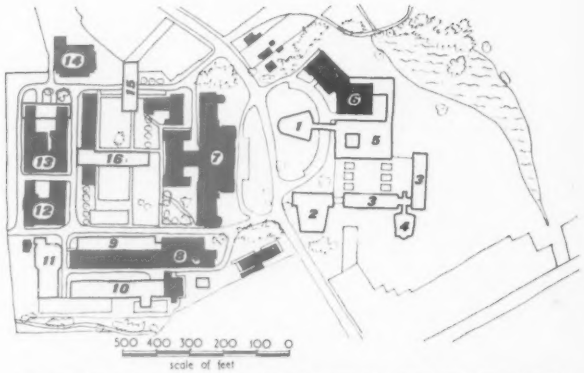
reintegrated

35 *Sheffield*

key: 1, union and refectories. 2, theatre. 3, physics and mathematics. 4, botany, zoology and genetics. 5, library. 6, lecture theatre. 7, arts and architecture. 8, boiler room. 9, chemistry.



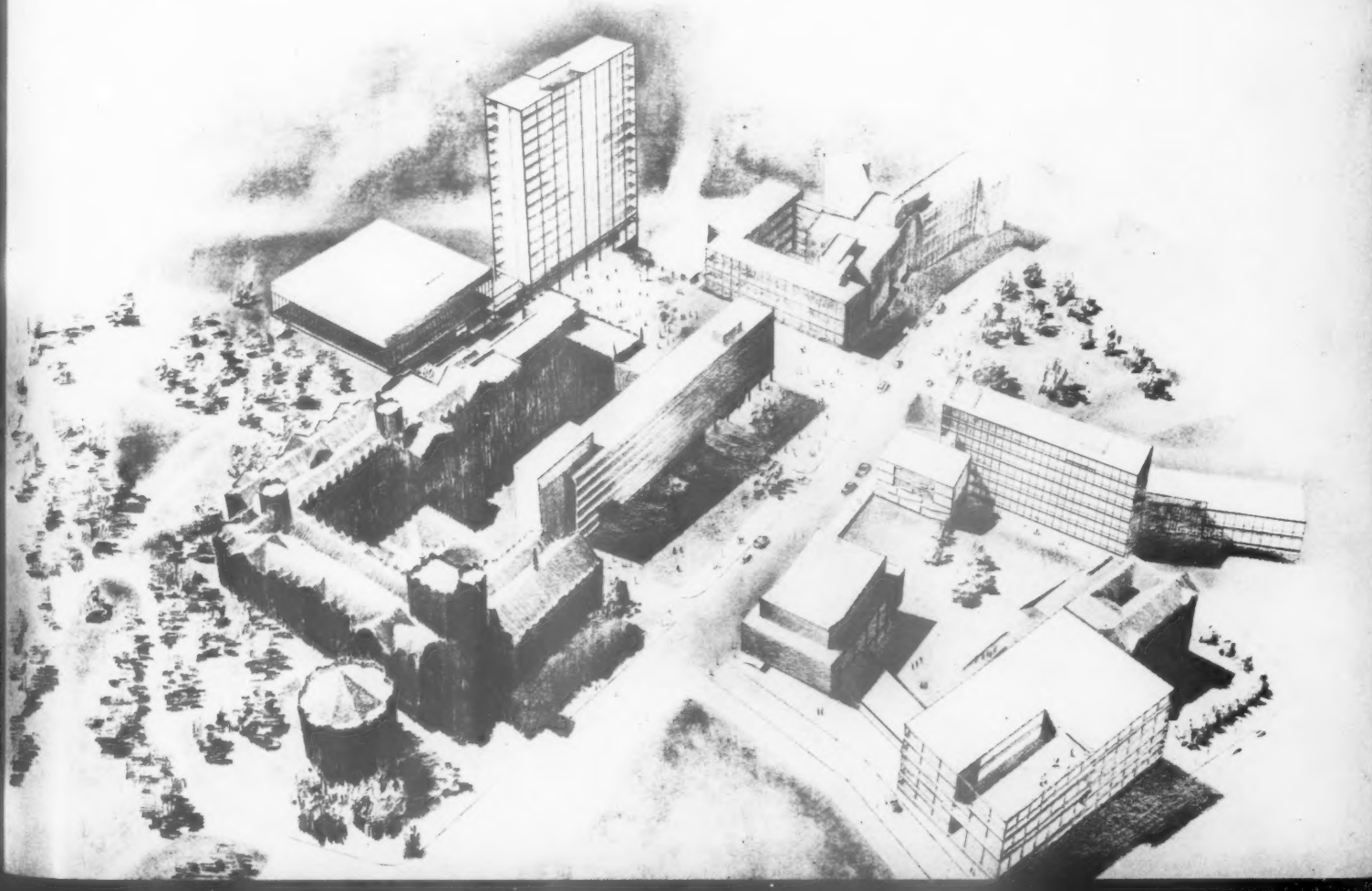
36 *Sheffield*



34 *Southampton*

key: 1, chapel. 2, great hall. 3, arts. 4, amphitheatre. 5, senior common room. 6, refectory and kitchen. 7, main building and library. 8, workshops. 9, engineering. 10, aeronautics. 11, tower. 12, geology. 13, chemistry. 14, physics. 15, physics extension. 16, economics.

Extension by cellular or courtyard plans, though it contains all the basic qualities needed in university building, may still load the balance of a university so far away from its original fulcrum that equilibrium may need to be consciously re-established. At Southampton, 34, and see also p. 234, Basil Spence has provided a strong vertical accent with the tower at the end of the engineering blocks, which packs the visual space back onto itself at a point where it might have fallen open; and at Sheffield, 35, the tall block, answering the red-brick Gothic towers of the older buildings, enables Gollins, Melvin and Ward to reintegrate a development that might otherwise have been in danger of spilling away down the very steep slope in the background of 36.



landscape

37 *Aarhus, Denmark*

38 *Swansea*

In any university-building programme involving more than alterations to existing buildings, landscaping will be a major feature of the design, and in campus plans it is the dominant feature — its use or misuse can make or mar the whole design. At its best, as at Aarhus, 37, the imaginative relationship of buildings, land-form and planting can produce results of breath-taking drama. At its worst, as at Swansea, 38, where someone seems to have hoped that nature would cover up the weak spots in an uncompleted axial plan (cf. 19, p. 245), there is merely an academic subtopia of sprawling buildings amid the ruination of a handsome landscape. At its best the relationship of landscape to buildings should not be as a disguise but a foil, as at Aarhus, or as it appears in Sir Hugh Casson's tentative proposals for residential development for Birmingham University, 39, where the traditional picturesque relationship of a low building, a lawn, a lake, and trees, is augmented and strengthened by the newer accent of a tall block rising dramatically clear of the planting.

39 *Birmingham*

continued from page 242

Convinced Victorian	Glasgow, Manchester
Edwardian eclectic	Birmingham
Neo-Cotswold	Oxford, Cambridge, Bristol
Banker's Georgian	Nottingham, Leeds
Deflowered Georgian	*passim*
Bullnosed modernistic (horizontal bars)	Glasgow
Bullnosed Cotswold	Oxford*
Odeon	Bangor, Swansea
Scientific barracks	Manchester
Sane contemporary	
scholarly	Liverpool
new town	Keele, Wye College
Miesian	Sheffield

When performance is disappointing one can blame, if one wishes, either the person who did the job or the person who gave it to him. But at a deeper level one will be wrong either way, for what is really to blame is the culture they both represent. University building committees of the last fifty years, looking out on an architectural world in chaos, with insignificant little parties emerging into momentary limelight as they do in revolutionary times, generally did one of two things. They plumped for 'the devil they knew,' or they played for 'safety' by appointing one of the leading lights of the profession. The results are plain for all to see. For there is no safety, and there is no short cut to success, in the arduous business of patronage, which in every age has only been effectively discharged by people who were prepared to devote a great deal of time to the study of the art they served.

That this never even occurred to dons and governors we must attribute, not to some peculiar blindness in them, but to the Victorian aesthetic they inherited. The Achilles' heel of the Victorian artist was his total inability to comprehend the industrial civilization around him. Isolated on his pedestal or in his garret, dressed in his peculiar uniform, he soon acquired the craftsman's myopic eyesight and complete obliviousness of the total scene. The utter indifference, sometimes masterly, more often boorish, of the Victorian building to its Georgian setting is well-known, but it is not always realized how deeply this indifference cut into British culture. All the Redbrick (or Oxbridge) solecisms, the fiddling stylism of individual buildings and their irrational siting, the dreary mediocrity of such 'formal' layouts as were produced, the meaninglessness of the intervening spaces, the neglect of the all-embracing role of the landscapist and his abuse as a kind of confectioner—all can be traced to what had become a national inability to see the wood for the trees.

What had to be done, and what was done by the great pioneers of the nineteen hundreds, Lethaby, Geddes, Gropius, Le Corbusier, Mumford, was to restore to the designer his synoptic vision and thus re-equip him for his old role at the centre of civilization. Now that we have in Britain a new generation of architects and planners trained in their tradition, cultural alibis no longer apply, and the ball is in the court of patronage. And now that the old patrons are gone, it is impossible to exaggerate the responsibilities and opportunities of the new ones.

We can end on a note of hope. Achievement in the sense of completed buildings of first-rate quality is meagre almost to vanishing point. But there are better things on the drawing-boards of better architects, evidence that in some universities at any rate hard thinking has issued in brave and wise decisions. May their number increase!

* Subject for further research: Oxford's terror of a sharp arris.

acknowledgement

We have been generously and often courageously helped by vice-chancellors, university officials, planning officers, architects and others connected with every university in England, Scotland and Wales. We cannot name them all, but we hope that they will feel that their kindness, even if they disagree with our conclusions, has contributed to the search for a better environment.

DETTORI DIGNIORI
BOULANGERIE
31
BOULANGERIE PAT
GUN MAKERS
COLE & SON
ORIENTALE

Nicolete Gray

ARCHITECTURAL LETTERING IN RELIEF

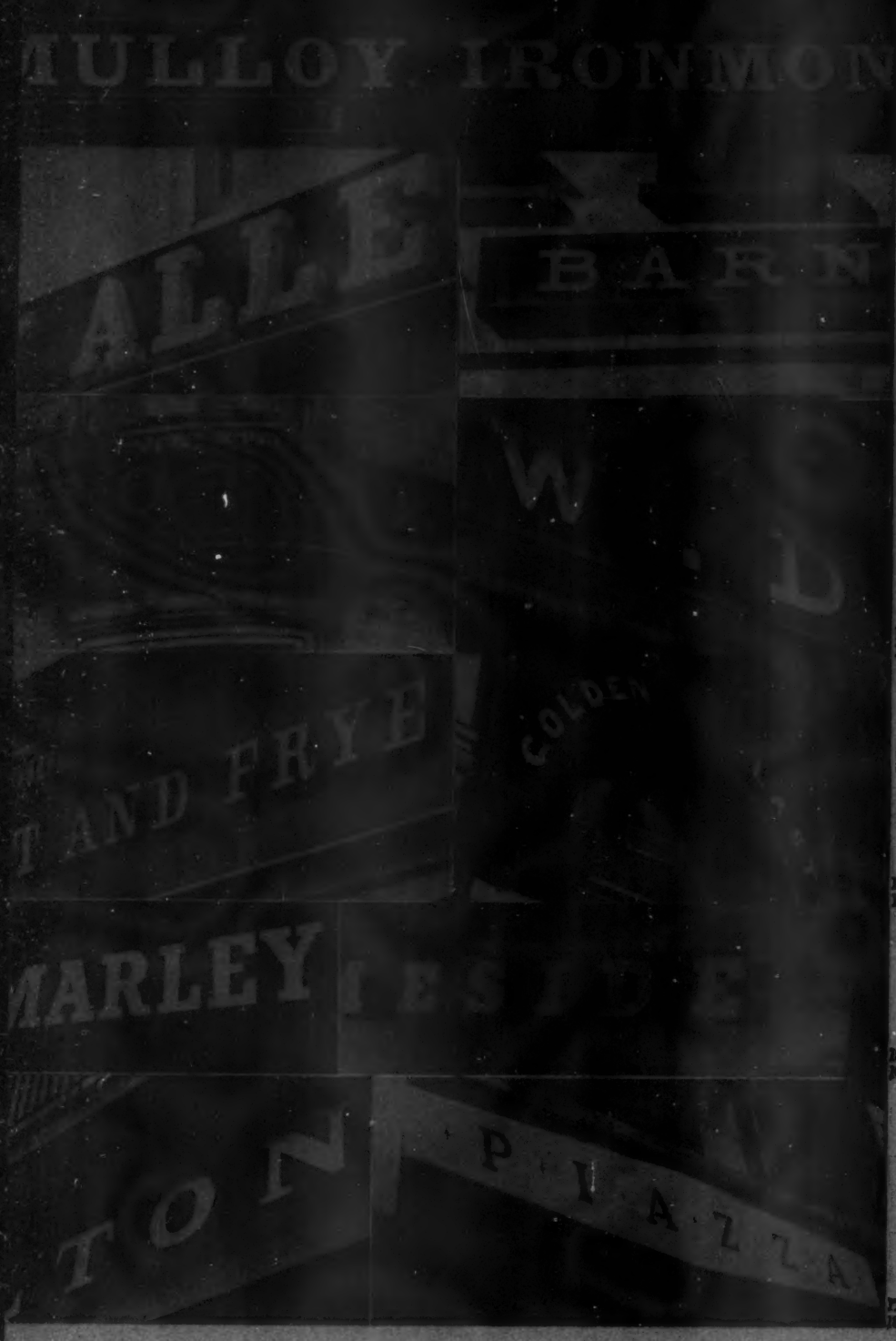
If architecture is concerned with solid materials and design in three dimensions, so is architectural lettering. And it needs to be designed in these terms. Much of the best new lettering which is going up is two dimensional in conception to which a third dimension is an extraneous afterthought. The results are frequently passable, often stylish, but never really good; never worked out in all relationships as type design has been worked-out, so that it is sometimes superlatively good. And, indeed, that is what is to be expected. If architectural lettering is to be really good it needs its own designers starting from its own problems.

What are those problems? It is not simply a question of choosing the measurement of an extra dimension; indeed there need not be an extra dimension at all. The sign-painter, who is normally as a matter of course an architectural letterer, has a very strong tradition of illusionist shaded lettering, surely based not only on pleasure in the complication of its execution, but on a sound instinct that to throw his forms into relief is to put them into relation with their setting, 1. One has only to imagine 'Cole and Son', facing page, without its shadow to realize how important that shadow is; it has also been thought of in terms of colour and paint-texture.

When the third dimension is actually there the question of section immediately arises. Then there is that of the interrelation of depth, height and weight. The last factor is not, of course, normally a constant (though here one sees a reason for preferring the simplicity of an even-line sans or Egyptian) traditionally line-width is shaded thick and thin. Thirdly, there is the relation between the letter and its background, shall it protrude or recede? How far is it to be differentiated from surrounding detail? If it is free-standing or detached there is the space between the letters and between them and their background to be considered. Finally, since it is three-dimensional, it is shadow-casting, and there is this variable also to be taken into account.

There has been considerable experiment with the three-dimensional letter in the past; yet we seem to ignore it. We have turned for guidance either to type or to the Romans, without noticing that their grand architectural formula was a two-dimensional leaded letter, actually I suppose a design in colour and texture, now destroyed: while we fail to notice our own remarkable native tradition. It is often assumed that the normal section of the monumental letter is triangular, it is obvious that today this is not a norm but only an alternative. The triangular experiments in proportion of post-Renaissance English designers are, however, still relevant. 2 is a detail of the great painted relief

1, illusionist shaded, on a shopfront at New Ross, Eire. 2, detail of painted relief, Painted Hall, Greenwich. 3, incised triangular in Bath. 4, square-section relief, Sheldonian Theatre, Oxford. 5, square-section, recessed, the Monument, London, E.C. 3. 6, modern square-section, recessed, Barrington House, Gresham St., London, E.C.4. 7, applied Roman with angled return, Cheltenham.



8, square-section Egyptians in low relief at Westport, Eire, and in high relief at Needham Market, Suffolk, 9, and at Ross, Herefordshire, 10. 11, a French example of perspective Egyptian. 12, uniformly splayed example at Worcester to compare with a square-section modern Egyptian in Dublin, 13. 14, relief Sans contrasting with background Scarborough, York. 15, lettering on glass in London, and freestanding at the South Bank Exhibition, 16, and in Fleet Street, 17. 18, pierced sheet lettering, Percy St., W.1.

inscription in Greenwich Painted Hall, 3 an incised letter of a century later. As one studies monumental inscriptions one realizes, however, that a great many, possibly the majority are square section. 4 is from the Sheldonian Theatre at Oxford, unfortunately obscured as a rule by the lead flange above it. 5 is from the Monument, recessed instead of relief, and beautifully spaced. 6 is a modern variation of the square-section stone-cut letter; on the right lines, essentially a pattern on two planes.

Applied lettering clearly offers much greater scope for variety in design and depth of section than is possible in stone. This is the most common technique of today, but we do not approach nineteenth-century standards of sophistication. One has the impression that their cast metal letters are shapes which have been conceived in three dimensions. For instance, in the ordinary French sans (bottom right, frontispiece), the equality (or apparent equality) between the depth and the width of the letter-stroke is a definite and important feature of a satisfying letter. But experiment went much further. 7 is a rare English example of the return of a Roman letter meeting the background at obtuse angles of varying sizes. The more common Egyptian is shown in 8, 9, 10, 'Boulangerie' (frontispiece) and 11 show French examples in Romans and Egyptians of this perspective letter; designed, of course, to be seen from the side and from below, they retain a grand monumental quality, the angles are modulated to enhance their solidity. 12 is a simpler letter with uniformly splayed sides. It is enlightening to compare this letter with a modern example of similar proportions. 13 but with straight sides. Given such high relief does the splaying improve the relation between letter and background? The nineteenth-century straight-sided letter is normally shallower than its modern equivalent; it is a question which needs exploring.

Curves or planes in the letter can accentuate or contrast with the curves or planes of its background, and 14 is a successful example. A modern, more subtle version of the same sort of relation is that between a two-dimensional letter on glass designed against space—another idea full of possibilities with plenty of prototypes in cubist painting, 15.

The problem of the cast shadow is very much a problem of today. There are practical advantages in fixing away from the wall, but one seldom sees this taken into account in design, the effect is usually accidental and in particular thin letters lose all solidity. 16 is an example where all three elements, the letter-face, the curved reflecting background and the space between, are thought out in relation to one another. Another technique which is being worked out with interesting results is that of the letter containing hidden lighting, which is reflected by the background, and illuminates the space between. 17 is an example which is also successful by day. The substantial depth is balanced by the bold design and the free surrounding space. Finally there are those insubstantial letters which are merely holes in their background, 18. One notices that it is the new techniques, which demand new thought, that are producing architectural letters of real interest.

HOUSE NEAR BEAULIEU, HANTS

ARCHITECT	***HUGH CASSON***
associate architects	***R. A. Green and Margaret Casson***

1

1. the house seen from the southward end of the jetty, within a few feet of the foreshore. The loudspeaker horn, seen left, together with the high-fidelity equipment installed at the house, is described in SKILL, pages 286-288.

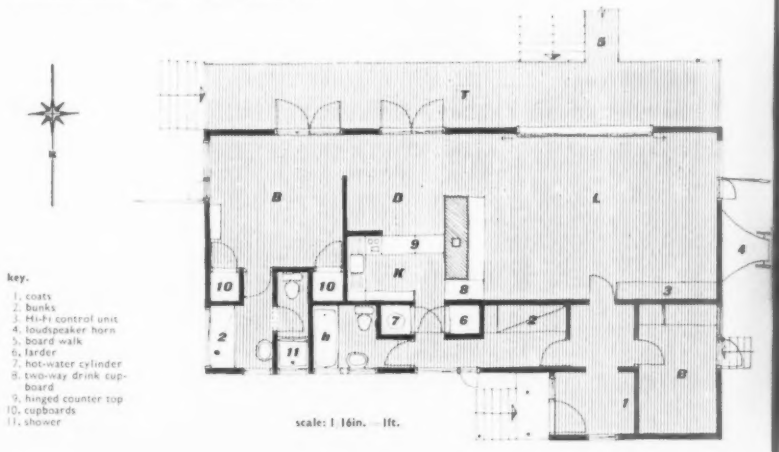
The site of Warren House faces south, with a direct view over the Solent to the Isle of Wight. The house is set slightly back from the shingle shore behind a tide bank on ground approximately 7 ft. above water level ; the floor platform of the house is level with the top of the tide bank, which allows a jetty 56 ft. long to stretch from the open deck in front of the house to the tide bank and down on to the shore.

The house was designed in two parts ; first, drainage, pier foundation and timber platform with mains services and plumbing connections terminating at platform level, and secondly, the superstructure in timber construction, vertically boarded internally and externally throughout, with flat roof. This was done to allow competitive tender for the foundations in the first instance, and comparative tenders for prefabrication and traditional construction in the second. The house was set on piers about 3 ft. 6 in. above ground to give a better view ; the piers consist of mass concrete pyramid shaped blocks, tapering from 4 ft. square at the base to 15 in. square at the apex. They are set at an average of 18 in. below the surface to keep clear of the wet shingle existing about 4 ft. below ; the finish of the exposed aggregate follows the character of the shore. On top of the piers, in situ carrier beams were cast in reinforced concrete, and across these, running the length of the building, was constructed a platform of timber joists with tongue and groove boarding which forms both the floor of the house and an outside area of decking. The whole platform is surrounded by a deep softwood trimmer, coach-bolted to the platform and painted with pitch defining the floor of the house. The platform is insulated and a soffit constructed of roofing felt and asbestos.

The house superstructure was designed round a 3 ft. 4 in. module to allow for either prefabricated or traditional construction at the tendering stage, and was built on a site construction basis with softwood studs at 1 ft. 8 in. centres, lined internally with asbestos fibre board and vertically V-jointed softwood boarding, and externally is clad with bituminous felt and vertically V-jointed cedar boarding. The general policy for windows was that the south front leading on to the open deck should be fully opening doors, either sliding or opening out, and that other windows should either be view windows, as on the east and west elevations, or high level fanlights on the more exposed sides of the building.

The accommodation is based on a large living-dining area served by a cabin type of kitchen ; the bedroom, dressing room, w.c. and shower is one self-contained unit, with guest's accommodation in a small bedroom and annexe leading into the guest bathroom. A central brick fireplace forms the main division between living area and kitchen, with counters dividing the kitchen from dining room. Venetian blinds are set at high level over the counters to mask the kitchen. An extract fan above the cooker and a dome light in the roof give light and ventilation.

The walls internally are either clear varnished or painted. The ceiling throughout is close boarding V-jointed at 2 in. centres running the length of the building painted gloss white. The boarding externally is untreated cedar ; the fascia is white painted blockboard forming an upstand all round (with internal rainwater pipes) and the fascia is topped with aluminium angle painted white as protection against the sea atmosphere. The house has all main services, except for septic tank sewerage, but as the water supply is weak, a 400-gallon storage tank is set below ground with a pump system to a 100-gallon storage tank on the roof, so that the smaller storage tank is constantly maintained on the build-up of off-peak supply to the larger tank below ground. The shower is also worked by pump. The radio installation is of a specialized nature and a purpose-made loudspeaker horn and radio cabinet were designed as part of the building operation but carried out by a subcontractor. The internal fittings were also purpose-made and constructed by the general contractor. The furnishing was carried out by the client in consultation with the architect.



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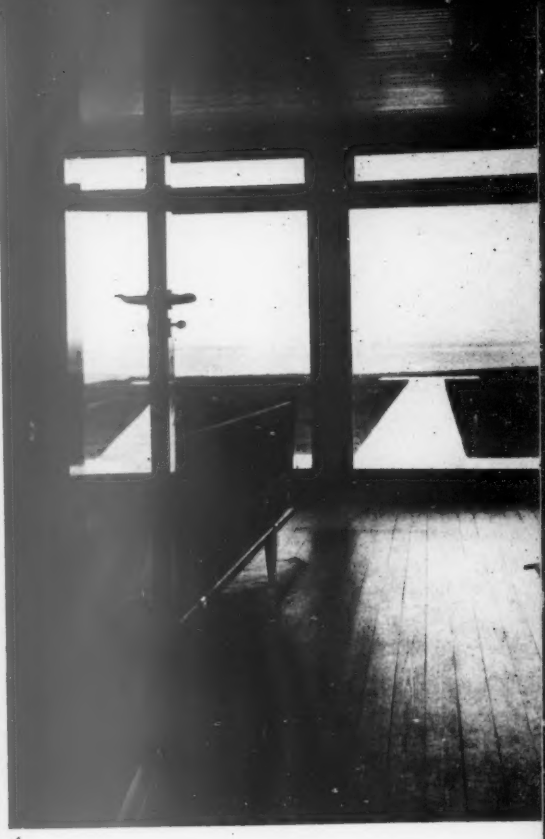

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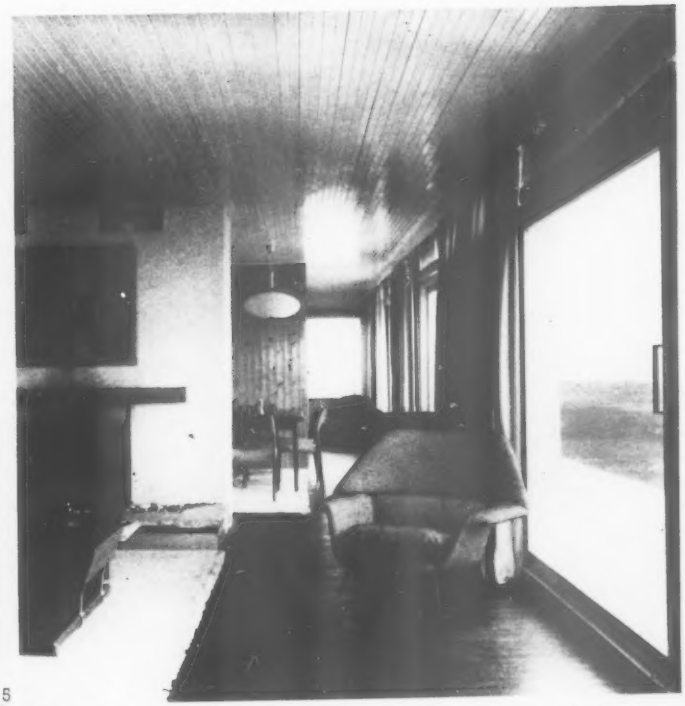


5

6

HOUSE NEAR BEAULIEU, HANTS

2. the living-room looking towards the hatch-way into the kitchen. The sofas and angle table are Danish, by Peter Hvidt and Molgaard Nielsen and are of Bangkok teak. The lamp in perforated metal is by John and Sylvia Reid and the low slate on metal table by Terence Conran. 3. the south-west corner of the living-room, with the loudspeaker horn concealed behind the screen on the extreme right. The Danish desk, of Bangkok teak, is designed by Arne Vodder; the black leather upholstered chair, which has a polished steel frame, is by Arne Jacobsen and the banquette is by the designers of the sofas in 2. 4. looking from the hall through the living room towards the jetty. 5. view along the south wall of the house, through the dining-room to a bedroom at the far end. The armchair is by Robin Day. 6. the view in 5 reversed. The bedroom partition is dark green; the curtain is of black and white stripes of differing widths.

7

8

7. the kitchen from the dining-room: the counter and fitting below it is partly painted white and partly waxed mahogany, with a grey plastic top; above it a venetian blind, which usually masks the kitchen, is pulled out of sight. The blue and white cotton curtains in the background are by Laura Ashley. 8. from the kitchen looking into the dining-room: the Danish dining chairs are Bangkok teak, designed by Möller; the wicker chair was hand-woven in Hong Kong, and the lamp, which is spun plastic, is by John and Sylvia Reid.

Ian Nairn

FIFTY YEARS OF ARCADIA

THE GOLDEN JUBILEE OF HAMPSTEAD GARDEN SUBURB

Hampstead Garden Suburb is fifty years old this year, the first of the pioneer schemes to mean business visually as well as socially. And at fifty years distance the eye can seek out a bitterly equivocal set of its visual consequences in almost any town in the country. On the one hand there is the rediscovery of arcadia, the leafy fairyland for which the Suburb was directly responsible; on the other there is the sterility of the average council estate neighbourhood which is equally a direct result of the attempt to translate the Suburb into a large scale remedy for the urban housing problem. This modest commemoration is simply a restatement of the obvious: something which will have to be said over and over again until the mistakes* stop being built.

The Garden Suburb is a pattern book, but you have to turn the pages yourself: the arcadian rhythm is kept up for a few yards, or around one corner, but it never lasts the length of a whole street. There is always, sooner or later, a long straight street, fairly leafy, with rather too many houses in it—something not radically different from the normal council estate. And this is a fundamental criticism; to put the question starkly, if arcadia is fairyland, the sum of hundreds of individual illusions, to be successful as a whole it must itself be an illusion: like the famous limerick, it must be 'never all there at a time'. Ideally you should be able to go from one end to the other without ever having had an impression of the estate as a whole. This demands rapid change and informality: it also demands a continuous melting together of buildings and landscape because the moment the street breaks up into set pieces, however pretty, the visual rhythm breaks down into the rhythm of individual houses, and once the experience is anything like adding individual houses together the illusion has gone for good. Short vistas are almost a necessity, with constantly changing views so that the house unit can never be seen as such but always as part of a bigger composition; a continuous and continuously changing streetscape. That is to say, planting has got to act as the glue, binding the individual units together. If the plots are large enough (the very high class estates—Wentworth or Camberley) or the houses are small enough (the estates at the other end of the scale—the shack colonies) the buildings are lost among trees altogether and landscaping is easy. But in the ordinary residential estate this can't be done: there must inevitably be fairly big buildings in fairly small plots somewhere near the street line. The planting then has to carry off a sophisticated conjuring trick or fan dance, and this is where the contribution of the Garden Suburb is so important. It is easy to take the ideas for granted now; in fact a look at Hornsey to the east of the Suburb and at Cricklewood to the west of it will quickly show just how much of a contribution it was.

* the largest and best known results of this confusion are called New Towns.

Nash to Unwin: *the original arcadia, in Nash's Park Village West,* 1, *and Loudun's Great Tew, Oxon,* 2. *Simplified and straightened out, this type of landscape became the small change of the good Victorian estates and was then taken over for the new suburbs, using much smaller housing units: Bournville,* 3, *in the* 1870's *and Unwin's own layout at Letchworth,* 4, *in the early* 1900's.

1 | 2
3 | 4

5 | 6
7 | 8

This type of design had, of course, been done before; there is a perfect suburb in a loop of eight houses off Albany Street, N.W.1, built a hundred years before the Garden Suburb: Nash's Park Village West, 1. It has a serpentine road, irregular outlines and planting and buildings completely fused; and so has Loudun's village at Great Tew, Oxon, 2: in fact the rules for arcadia are simply those of Picturesque Theory. But whereas Picturesque Theory in a town is *au choix* to be used along with formal axes and regular layouts, Picturesque Theory in the suburb is mandatory: it can't be done any other way.

To judge from his book* Unwin's work at Hampstead was a genuine rediscovery, for his only reference to Regent's Park was to call it 'an example of the Renaissance School of town planning' and he arrived at the same result from looking at medieval towns. The circle from Nash to Unwin starts with the simplifications of the big Victorian estates—with the streets gradually becoming straighter and the landscaping becoming simpler. The houses were so big and far apart and the trees so many that this hardly mattered. Then for the first time Bournville took over the pattern of the high-class Victorian suburb estate and equipped it with small workers' houses set close together, 3; Letchworth did the same thing, 4. Naturally, it didn't work, for there were too many building units and not enough trees, and the street lines looked like an ordinary *rue corridor* inexplicably chopped up and with a bit more foliage than usual. Take away the foliage and straightway the result is the Hounslow By-pass. After planning Letchworth, Unwin read Camillo Sitte and the result is apparent immediately in Hampstead Garden Suburb; it is sad that there are today so many leafless Letchworths

* Town Planning in Practice, 1909

5 | 6
7 | 8

Hampstead Garden Suburb: *after planning Letchworth, Unwin read Camillo Sitte and applied the results in designing the Garden Suburb. Straight streets become curved, 6, and the corners are inflected by houses, 5; individual houses become fused into the landscape, 7. However, the typical long street view is more like 8, which is no real advance on the design of Lecthworth.*

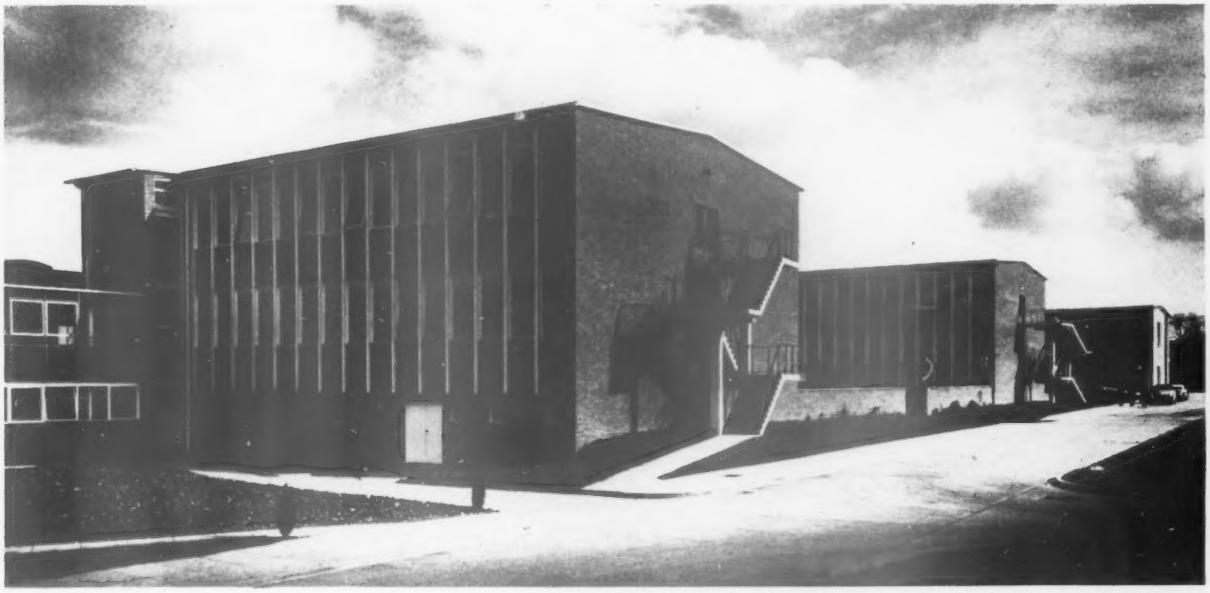
and so few copies of the Garden Suburb.

The other lesson of the Garden Suburb is one we are still working out, and the solution, easy enough to formulate in words, is nowhere in sight on the land surface itself. The fatal confusion that Hampstead made was that it didn't know whether to be a town or a suburb. It called itself a suburb and set out to design in a suburban way. But as a suburb it should have been a quarter of its present size at most; visually, it should never have attempted the formal centre, for which one can fairly blame Lutyens: socially, it should never have attempted to build a co-operative society with units which emphasize differentiation. In spite of the name, what the founders were really trying to create, socially, was a leafy small town; in fact the co-ownership idea collapsed after the first World War and the rest of the Suburb was built up with desirable modern residences, nearly all Neo-Georgian with far too much architecture about them. It is now an upper middle-class dormitory of 16,000 people with an arty slant, bigger than Stamford or Lewes, which is about as far from the original planners' ideals as it could be. It is silly to blame the creators of the Garden Suburb for the confusion—they were feeling their way with a new social unit: but one can legitimately blame all the planners who, with the mistakes of Letchworth and Hampstead Garden Suburb in front of them, perpetuated this confusion. The New Towns have all tried to be urban using a Garden Suburb plan with all the space left for trees and close planting that a Garden Suburb needs. To make matters worse, architects had in the meanwhile re-learnt how to design urban terrace housing, and did so—only to have it chopped up and spread out by the planning regulations forming something which in the strict sense of the phrase is a proper bastard.

Arcadia at four levels: *the arcadian design suburb is sometimes thought of as a high-class and high income prerogative. That is not so, and here are four examples for very different income groups.* **9** *is part of the LCC estate at Old Oak Common, with Picturesque Theory learnt so well that hardly any trees are needed—the single obtrusive vertical of the telegraph pole does far more damage than it would in any other environment.* **10** *is 'Happy Valley'—Biggin Hill, Kent, a 'shack colony' but an admirable suburb all the same. Tiny unselfconscious houses are simply swallowed up in the trees—there are about a dozen hidden in this photograph.* **11**, *middle-class suburban at Welwyn Garden City, a dream of filtered light and serpentine roads, with all the lessons of the Garden Suburb correctly applied to a whole area.* **12**, *high-class suburban on the Wentworth Estate at Sunningdale.*

9 | 11

If we are not to have another fifty years of bastards there must be a rapid relief from muddled thinking among the makers of development plans. Any bit of housing can be either urban or arcadian: it is folly to mix the two and the planner must decide which he is going to use. The arcadian estate needs Picturesque Theory, a lot of planting, all other uses separate, camouflage from the outside landscape, and a maximum density—the figure above which proper landscaping becomes a difficult job. The urban estate needs continuous street lines and building lines, a complex pattern of streets, with shops and pubs mixed in and probably a minimum density to give enough building bulk. The aggregate of a lot of arcadian estates, however perfect, will never make a town: arcadia is an alternative way of living, not a replacement for urban housing. Which way of living the people want is up to them; the aloof may like arcadia (or, at the other extreme, flats), the gregarious may like urban family houses. There will always be both types of people in the world, so that the New Town will always have its urban nucleus, as long as the planners are prepared to build two distinct things instead of an amorphous conglomerate. The best commemoration we could give to the jubilee of Hampstead Garden Suburb is simultaneously to apply its design principles and learn from its planning mistakes. The alternative—to coin a phrase—is subtopia.

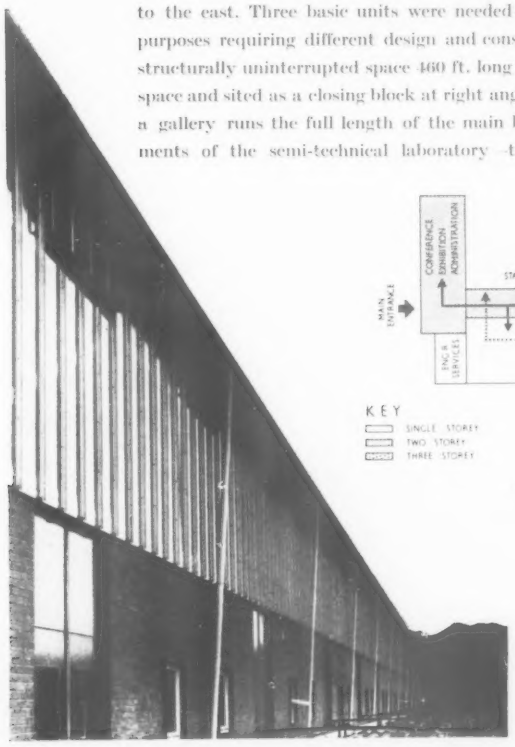


1, *the two service lab. wings from the south-west with administration block beyond.*

LABORATORIES AT WELWYN GARDEN CITY

ARCHITECT: E. D. JEFFERISS MATHEWS
PARTNER-IN-CHARGE: R. S. POOLE

This Technical Services and Development building for Plastics Division, ICI is a continuation of the buildings illustrated in AR, June, 1954, page 408. It provides technical services for customers who buy bases for the manufacture of plastic articles and carries out production development work in the use of plastics. The labs have an open site, sloping slightly downhill to the east. Three basic units were needed—administration, development plant and service laboratories—each with distinct purposes requiring different design and construction techniques. The result can briefly be stated as follows: a one-storeyed, structurally uninterrupted space 460 ft. long with a 60 ft. span, and 20 ft. clear height, forming the semi-technical laboratory space and sited as a closing block at right angles to the axis of the other blocks of the research area. Above this accommodation a gallery runs the full length of the main block off which are sited the offices directly related to the work of the departments of the semi-technical laboratory—this gallery is connected to the main entrance and administrative block and provides a general view for visitors and customers of lab activities. At right angles to this block are three wings built on the major axis of the other blocks already built, providing office accommodation, a conference and exhibition room and two service laboratories. A steel frame was used generally, but in combination with some load bearing brickwork. A co-ordinating 4 ft. module was used, stanchions being placed at 20 ft. centres in the semi-technical laboratory and at 12 ft. centres elsewhere. The curtain walling is outside the structural grid to avoid interruption by columns.



2, *part of the north elevation of the main lab. block. All main services except electricity are run externally in lagged pipes painted in code colours, seen at bottom of picture.*

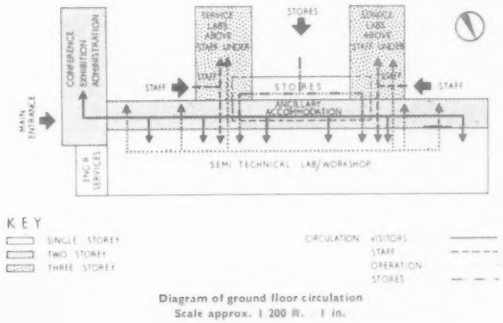


Diagram of ground floor circulation
Scale approx. 1 200 ft. = 1 in.

TWO COMPREHENSIVE SCHOOLS AT COVENTRY

Both of these schools were designed for the same client as comprehensive schools with almost the same requirements. They were prototypes for the Bristol Aeroplane Company's Mark 2 system of steel framed construction.

3

3, from the south; teaching block on right and administration block beyond, prestressed bridge over fishpond in foreground.

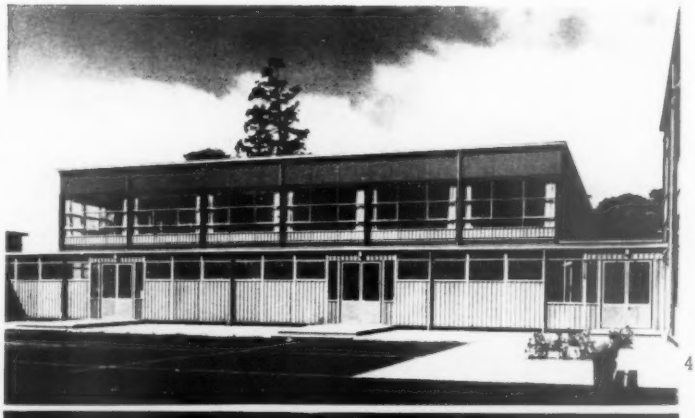
4, assembly hall seen across central court.

5, close up of the cladding. Opening window lights, stanchion cases and fascia are white, remainder is grey.

1. SCHOOL AT WHITLEY

COVENTRY CITY ARCHITECT: ARTHUR LING
ARCHITECT-IN-CHARGE: W. A. JAMES

This is a mixed school with 1,650 places on the site of the former Whitley Abbey, south-east of Coventry. It will consist eventually of ten houses paired in five house blocks with teaching rooms separate; the first three blocks have been built so far. The constructional system uses a steel frame with aluminium wall panels for multi-storey and some single-storey blocks; the smaller single-storey blocks consist of load bearing aluminium panels. The floors have precast r.c. floor beams on fibre board pads, the roofs are galvanized steel decking laid flat on top of steel roof beams. The hall has a small stage for day-to-day use; when a big stage is needed the adjacent gymnasium becomes part of the stage with a movable cyclorama used to define the stage area.



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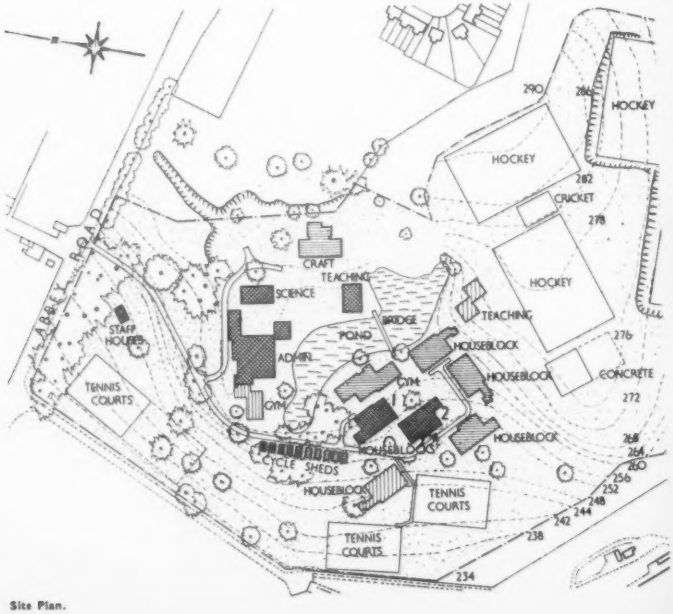
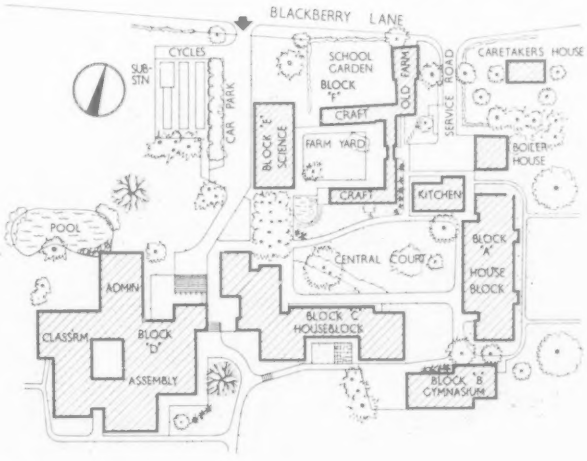


Site Plan.

6, *main entrance from north with two-storey house blocks on left.*

2. SCHOOL AT WYKEN

ARCHITECTS: MINISTRY OF EDUCATION
ARCHITECTS-IN-CHARGE: PETER NEWNHAM AND DARGAN BULLIVANT



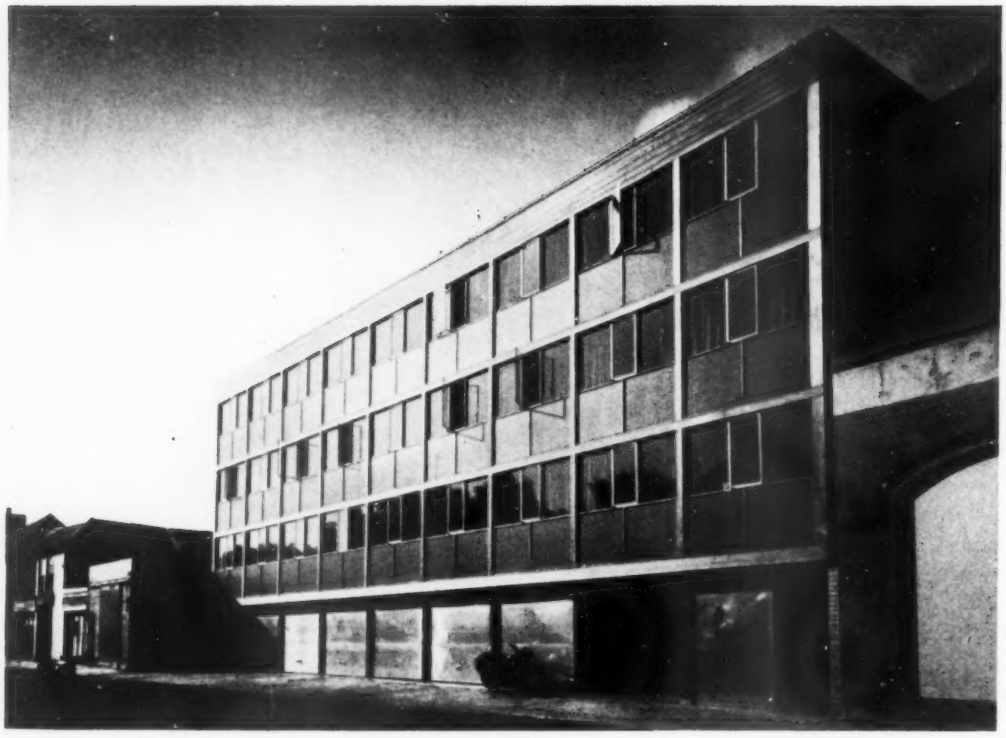
Site plan.

Lyng Hall is a girls' comprehensive school of 1,650 places in ten houses, of which five have so far been built. The houses have been kept self-contained as far as possible, and include a room for the housemistress. The site is a farm at Wyken, north-east of Coventry, and the existing farm buildings were kept and re-used as practical rooms. The construction is exactly the same as at Whitley Abbey school, see opposite; there are two assembly halls which can be thrown into one when necessary. The landscaping and planting contract was run concurrently with the building construction, as a nominated sub-contract.

7, *house block 'A' from the south-west.*

8, *assembly hall; light fittings by Schottlander, curtains designed by David Holt on theme of characters from the Coventry plays.*

9, *part of the landscaping beside the assembly hall, looking towards gymnasium.*

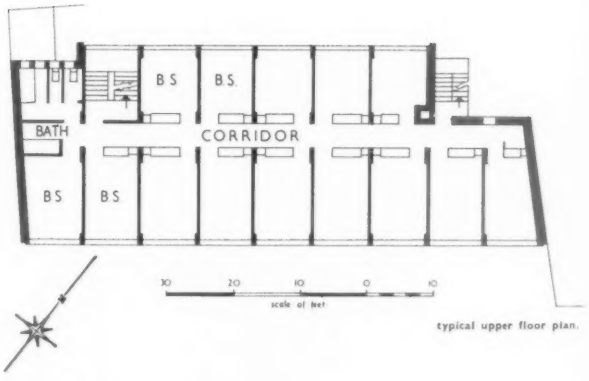


10, street front from the east; the ground floor is used as garage space.

Y.M.C.A. HOSTEL AT PORTSMOUTH

ARCHITECT: F. J. GUY

This hostel is a replacement of obsolete buildings in Penny Street near the Garrison church in Old Portsmouth. The road frontage faces south-east, looking across a small grass area called Governor's Green with large views of Spithead from about 20 ft. above pavement level. On the north-west side, a matured garden separates the Penny Street frontage from the main Y.M.C.A. building; the size of the rooms was based on one in the existing building. The construction is a frame of thin concrete stanchions, monolithic with solid concrete floor slabs; load bearing brick walls appeared to be slightly cheaper, but would have taken up more floor area and thus made the room sizes smaller. The front façade is clad with window units of western red cedar with steel opening lights, and spandrels of 3-in. wood wool faced with cast glass, vitreous-enamelled light blue on the back. The exposed edges of the concrete frame are covered in with flats of western red cedar. The rear filling consists of identical window units and spandrels of 11-in. cavity brickwork.



typical upper floor plan.

11, distant view from the east, with wall of the Garrison church on left and the towers of Portsmouth cathedral and power station beyond.

BOOKS

NOVEL GUIDE-BOOK

OLD LONDON CHURCHES. *By Elizabeth and Wayland Young. Faber and Faber.* 63s.

It is rather hard to write the wrong book in architectural history. When I say that this pair of authors have done it I mean nothing derogatory, because what they have achieved is something much harder than what they ostensibly set out to do. What title and blurb indicate is an architectural-historical account of every London church built before 1830, whether burnt or not; what has actually come out is a picturesque poetic novel on the topography and history of London. The description of history runs the whole gamut of wit, from farce at St. George in the East to what is really a fine-spun metaphysical essay called up by, of all places, Old St. Pancras. As for the topography—well, here is the entry for that little shocker by Blore, St. George's, Nine Elms Lane:—

> 'This church is an epitome and concentrate of London at its worst. Nine Elms Lane is a great highroad from nowhere to nowhere: the giant power-station of Battersea towers and belches smoke over a blasted desert. Here in what used to be called Battersea Fields the young Edward Blore, Sir Walter Scott's protégé, built for less than £3,000 a brick chapel with lancet windows. It had a gimcrack pinnacle which Carlos censured in the "Gentleman's Magazine"; it was beyond Blore's capacities, he said. Even this tiny deviation from the line of greatest ugliness was abandoned in 1913 for a yet simpler arrangement of as few bricks as will hold a bell up. In Victorian times the plaster vaulting was replaced by village-hall open timbers, a chancel was added, roughly in keeping (sad keeping), and two transeptal chapels entirely out of keeping. One of these was bombed and the stump is cauterised with lavatory tiles; the other is disused. The churchyard, still almost empty of graves, is deep under waste paper and waste cardboard, the church is locked, the churchyard is locked; all is filth and desolation added to hideousness. Those who seek a yet remoter charm in nineteenth-century churches than Mr. John Betjeman has taught them might try a visit to this one. . . .'

There's a price to pay for this, of course: the churches themselves have disappeared. There's hardly a phrase one can hang on to—as one can again and again in 'Georgian London'—because it represents as near the truth about a building as the human mind will get. The authors are in a Georgian impasse, and have left out the only classical church (Pennethorne's Christ Church, Albany Street, alas, built in 1837) which might lift them forwards out of it*. This means also that the only praise the Temple Church gets is for the skill of its restoration. The photographs are unhackneyed, and one—Basevi's St. Mary, Greenwich, when half demolished—is a collector's piece which makes one ungenerously want more (St. Peter-le-Poer, St. Olave Tooley Street?—perhaps nobody cared enough to take any photographs).

All this may sound like damning with faint praise: it's not. Anyone can write guide books—this reviewer hoards up fragments for dozens, squirrel-like, in his spare time: but very few can make poetry out of topography, still less out of historical small change. The freshness of their writing suggests that the authors may be young in years as well as in surname. I hope that in that case they can find the time to write a portrait of London as a living city that would transfigure all the thumbed-over anecdotes, and supplant the ninety-nine pot boilers that, unread, cram the public library shelves today. It would be a best-seller.

Ian Nairn

* Into what? the traveller round the county of London might ask. Touché. One Congregational chapel at Lansbury and a twenty-five year old church at Eltham, in sum. But one can still hope.

GRECIAN SUBTLETIES

THE IDEA OF SPACE IN GREEK ARCHITECTURE. *By R. D. Martienssen. Published by Witwatersrand University Press,* 1956.

Rex Martienssen, who died in 1942 at the age of thirty-seven, was the most promising architect of his generation in South Africa. The numbers of the *South African Architectural Record* of the last pre-war years brought him to the notice of architects and also of scholars abroad as well as at home; for he belonged to that exceedingly unusual type, the modern architect who is at the same time a serious historical scholar.

What his architecture stands for is demonstrated by what he built at Johannesburg and by what his friends, such as Hanson, Fassler and a few others, built. His scholarship had to wait for recognition until at last in 1956 the Witwatersrand University Press brought out his book. It is an architect's book and it considers Greek buildings and Greek planning in a remarkably fresh manner, more unusual even when it was written fifteen years ago than it is now. He emphasizes the sensitivity and subtlety of the Greeks as visual planners in a very intelligent and convincing way. The book bears witness at the same time to an uncommonly attractive character.

N.P.

THE CABINET TRADE

CONTEMPORARY CABINET DESIGN AND CONSTRUCTION. *Edited by Denise Bonnett. B. T. Batsford Ltd.,* 1956, 50*s*.

Too often, these days, a book claiming to be a serious contribution to a complicated subject havers indecisively between a work of reference and an informative entertainment. This would seem to result from an attempt to make the subject appear easy by means of smart page layouts and facile simplifications of technical difficulties. The furniture industry today is in urgent need of dedicated men in all its departments who will be concerned to restore some of the dignity and lasting qualities absent from the products of many manufacturers of contemporary furniture. For these people the easy approach is inadequate.

At first glance this book would seem to fall into the 'making life easy' category; a closer study reveals that it contains much that is of value to the serious student. It comprises fourteen chapters each dealing with some aspect of the furniture industry and written by one of the small group of people who are able to write with authority in the field which they cover. Inconsistencies result from a work by so many hands. For instance, whilst chapter eight is concerned with the 'Design and Construction of Cabinet Furniture' it is not until chapter twelve on 'Factory Organization and Production Methods' that the simple and essential cabinet timber joints are illustrated and described. This does not invalidate the usefulness of the book as a whole. The reviewers found chapter eleven on the 'Decoration of Furniture by Machine Tools' a most reasoned and distinguished statement; others will find pleasure and profit elsewhere.

N. W. and C.

BRAZIL TO DATE

MODERN ARCHITECTURE IN BRAZIL. *By Henrique E. Mindlin. Architectural Press,* 84*s*.

We are a number of years past the time when Brazil was echoing in architectural idiom the first romantic discoveries of the New World. The excitement of the early post-war days, when, thanks to good journalism and better photography, the impact of an intriguing contribution to modern architecture from an unexpected source achieved its maximum intensity, has slowly given way to a clearer and more balanced understanding. The Brazilian achievement can now be soberly appraised in relation to the progress of modern architecture as a whole.

Inevitably, it has the limitations of the present stage of its country's economic, social and technical development. So far little has been done in the way of prefabrication: in fact, only recently have building components begun to be manufactured locally. Similarly, little has been done to tackle the problems of low cost housing, or to provide for universal education. It is still basically a rich man's architecture, with all the limitations which that implies (except that an unusual number of rich Brazilians seem to be highly discerning patrons too).

On the other hand, there is the high degree

of plastic imagination shown by the Brazilian architects, particularly in terms of a building industry which is still only beginning to emerge from the craft stage. Incidentally, in situ concrete is very much a craft material, as used in Brazil. Then there is the unquestioned leadership which the Brazilians have attained in the solution of climatic problems in the humid tropics, and since most tropical countries are not yet industrially developed this is most valuable as an exemplar. Add also an astonishing ability to use traditional materials and techniques, such as *azuleijo*, mosaic, trellis, clay and ceramic pierced screens, and *cangicado*, together with a happy knack of getting the best out of architect/painter/landscape designer collaboration, and altogether it is a formidable list.

So far the documentation of Brazilian architecture has been somewhat fragmentary. Since the excellent but long out of date *Brazil Builds* by Philip Goodwin and Kidder Smith, progress has only been recorded for non-Brazilian architects by occasional articles and special numbers in THE ARCHITECTURAL REVIEW, and other periodicals. A comprehensive record was urgently required, and this need Mr. Henrique Mindlin has set out to meet. His book can be strongly recommended. Here are most of the familiar buildings, and not a few that are less familiar, but equally interesting. Limitations imposed by cost have, however, resulted in the photographs being mostly too small and sometimes of surprisingly poor quality, and the drawings are scarcely adequate for any but a superficial examination. But in spite of these faults, Mr. Mindlin has given us one more invaluable work of reference.

Percy Johnson-Marshall

RATIONALIST ARCADIA

THE MAKING OF DUTCH TOWNS: A STUDY OF URBAN DEVELOPMENT FROM THE TENTH TO THE SEVENTEENTH CENTURIES. *By Gerald L. Burke. Cleaver-Hume Press Limited, 35s.*

While the student still awaits the arrival of a comprehensive history of town planning in English, comparable with Lavedan's *Histoire de l'Urbanisme*, he must make do with separate studies of a limited nature. Mr. Burke has provided a valuable addition to this latter store. In a country as flat as a drawing-board, planning becomes an exercise in plane geometry. From the air the Netherlands appear, indeed, as the rationalist's Arcadia. The fields are exact rectangles, measuring five kilometres by three. The dykes and the ditches seem to be drawn with the precision of a gargantuan graphical exercise. Amsterdam is an expression of radials and concentric semi-circles—a spider's web; while Willemstad, Naarden, Coeworden and the rest of the towns which grew up in the Renaissance appear as complex as crystals, or as diagrams in higher mathematics. The towns illustrated in this work are all orderly, functional and compact, laid out neatly and exactly. They are urbane and delightful, but never pretentious or luxurious. Domesticity prevails everywhere.

Cecil Stewart

SPACE-MEN

GUSTAVE EIFFEL. *By Maurice Besset*; GUARINO GUARINI. *By Paolo Portoghesi: both in* Astra-Arengarium *series, Electa Editrice, Milan, 1.750 lire and 1.400 lire respectively.*

With the current wave of interest in non-orthogonal structures, fanned by the work of Candela, Le Ricolais and others, there is inevitably a parallel wave of interest in the irregular structuralists of the past. It is for Guarini's brilliant pierced domes of San Lorenzo and the *Sindone*, rather than his theoretical writings (or Vittone's) that so many students now take in Torinese Baroque when they are in Italy, and, for them, Portoghesi's new volume in the Astra series of pocket monographs is probably the handiest introduction to the master that there is.

Yet very few of the same students, when in France, will make an effort to work over the Eiffel Tower with equal thoroughness, and Besset's double-volume Astra describes what is virtually the unknown œuvre of an unknown designer. This cannot fail to strike one as odd—Eiffel is an accepted pioneer of the modern movement, his work still stands and is easily visitable (unlike that of Paxton or Cottamin) and his design is well in advance of any of his contemporaries, yet the last two books on him were published in 1939 and 1929.

Conceivably, except as a kind of Freudian father-image, he is more than most of us can take. Anyone who has worked over the Tower at all thoroughly, by stairway, and not by elevator, will know the numbing fits of spatial uncertainty that periodically overcome the visitor, caused—not by mere height alone—but by finding himself in a space-cage entirely devoid of horizontals, verticals or right-angles, so that the eye and the eustachian tubes begin to contradict one another in a manner that changes unpredictably with every turn of the stair. Such an experience is unique on earth at present, though it might become common experience on space-satellites in due course.

But it is also unprecedented, in a double sense. Our experience of contemporary architecture does not prepare us for it because, as Besset points out, 'the Tower, as much as the other structures of Eiffel, does not coincide with the static criteria that serve to define modern space-frames,' and our experience of the past does not prepare us either. A comparison of upward views inside Guarini's *Sindone* and Eiffel's tower will make this clear. The *Sindone*, dizzy and organic as it may at first appear, reveals traditional methods of piling stone on stone in arch, vault and buttress, 2, opposite, even if these familiar syllables are combined in hitherto unspoken words, and, in the end, it frames a familiar and limited space.

The Tower, on the other hand, is not held together by gravity, and Eiffel is therefore free to create a space where the gravity-conditioned human organism is out of tune with everything it can see, where feathery trellises sag towards the doubtfully-horizontal horizon, not the centre of the earth, and staircases lurch through the void without visually convincing means of support, 3. Yet it has a logic of its own, the logic of tensile strength and aerodynamics which Eiffel knew was not the

space-men *Gustave Eiffel, seen below with his collaborator Adolphe Salles (on stair), is one of the least appreciated of the Pioneers, possibly because even the most adventurous of earlier structures, such as Guarini's* Capella della Sindone, *Turin, 2, opposite, continued to depend on gravity for their stability, whereas the Eiffel Tower, depending on tensile strength, creates spatial effects, 3, that are still unfamiliar today*

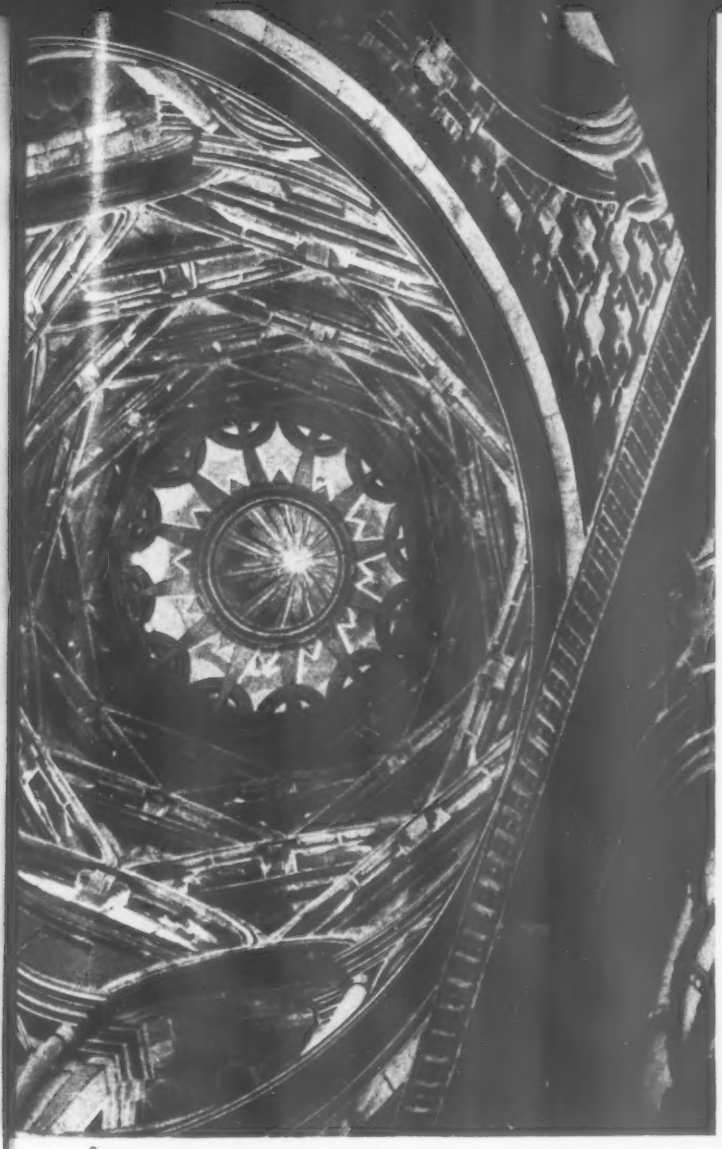
logic of aesthetics—and didn't care if it wasn't. 'Perhaps the authentic laws of energy are not always conformable to the secret laws of harmony? . . . Well, I submit that . . . they give a great impression of beauty and strength.'

Eiffel was the first, and perhaps the last, man ever to be allowed to put up a public building with complete disregard for any restraint of any architectural aesthetic whatsoever, and architects may never forgive him for it (J. J. P. Oud didn't, for certain). It is therefore entirely in character that he should have spent the last two decades of his life (he survived into the 'Twenties), when the machine aesthetes were trying to cram the laws of energy back into the strait-jacket of the laws of harmony, in building up the first large body of wind-tunnel experience on the aerodynamics of aircraft in flight.

P.R.B.

Books Received

STORY OF LINDSEY HOUSE, CHELSEA. By Peter Kroyer. Country Life. 42s.
WOOD BLOCK AND STRIP FLOORING CALCULATOR. By F. J. Hinz. Ernest Benn.
60 POST-WAR CHURCHES. Incorporated Church Building Society. 10s. 6d.
DRY STONE WALLING. By F. Rainsford-Hannay. Faber & Faber. 21s.
COSTING FOR BUILDINGS. By W. & L. Townsend. E. & F. N. Spon. 12s. 6d.
THE RHINE AND ITS CASTLES. By Monk Gibbon. Putnam. 25s.
ART AND INDUSTRY. By Herbert Read. Faber. 30s.
STYLE IN THE VISUAL ARTS. By Bruce Allsopp. Pitman. 18s.
FORM IN CIVILIZATION. By W. R. Lethaby. O.U.P. 12s. 6d.
DAS BUCH VOM RECHTECK. By Wolfgang von Wersin. Ravensburg. DM. 50.
ANCIENT MONUMENTS SOCIETY. New series. Vol. 4.
NEW HOUSES FOR MODEST MEANS. By H. Dalton Clifford. Country Life. 21s.
DARTMOOR NATIONAL PARK. HMSO. 5s.
MNESICLES. By J. A. Bundgaard. Gyldendal. Kr. 38.50.
DECORATIVE WROUGHT IRONWORK IN GREAT BRITAIN. By R. Lister. Bell. 35s.



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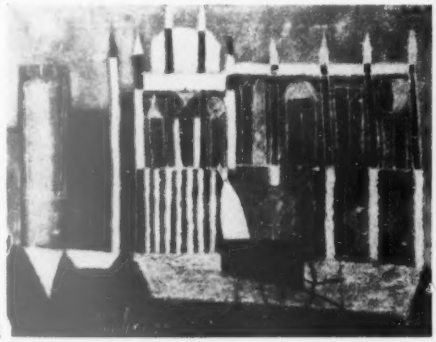
EXHIBITIONS

PAINTING AND SCULPTURE

As you probably know, the central office of the Zeitgeist *regularly supplies authenticated art critics with up-to-date lists of geniuses.* These lists are not, of course, available to the general public, and it is for this reason that amateur critics like myself sometimes make awful mistakes of timing. I have found, for instance, that Derain and Vlaminck, being for the most part brilliant painters of bad pictures, are very tricky cases indeed, and one can make oneself an absolute laughing stock by showing interest in them during one of those periods when they are not on the list. I liked one of the pictures in the Derain retrospective held at Wildenstein's a few months ago: it was a thoroughly retrograde bit of low-toned illusionism which made the bright colours of his Fauvist pictures look tawdry. I didn't write about the show, however, because the Gallery did not possess a photograph of the picture I liked and I suppose I had a lucky escape, for it became obvious from what the professional critics were saying that Derain's name was on the current list but only for his Fauve period. As for Vlaminck, whose work provided the opening exhibition of the new and elegant Crane-Kalman Gallery in Brompton Road, the vigour of his brush-strokes brings so unnervingly to mind those big, coarse, carefree geniuses in novels who can splash down a masterpiece with one hand whilst slapping a woman's behind with the other that by the time I got around to thinking that this was a proper occasion for drawing attention to a forerunner of some of the big, coarse, carefree geniuses of 'art autre,' the Crane-Kalman Gallery was showing a group of paintings by the Italian artist Franco Gentilini.

Gentilini's work is light, refined and influenced by Klee. Sometimes the paint is mixed with sand, as in *Cathedral and pushcart*, 1, to give a matt and crumbly finish, which looks effective on white-washed walls. He has the kind of wit that could be kept pointed and up-to-date if he were working for a humorous magazine or an advertising agency, but the paintings



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draw too much attention to his *mala fide* use of the innocent eye.

When Arthur Tooth and Sons announced an exhibition called 'Corot to Picasso' I expected the Picasso to make itself conspicuous in the company of Corot and

the gentle Boudin, but it was a 1916 Modigliani head that looked rather outrageously twentieth century, with its eyes crawling like beetles and a profile of a tip-tilted nose lying as flat as a pancake on a frontal view of the face. The Picasso turned out to be a portrait of Dora Maar, executed in pen and gouache and dated April 13, 1938, 2; quiet in colour, and too subtly intimate with its subject to be brazenly conspicuous. The game that Modigliani was

2

playing tentatively and eccentrically with the human features has become a wonderfully elaborate convention in the Picasso, and several aspects of the same face have come together in an augmented profile. It belongs to a superb series of drawings which occupied Picasso for about three months. In the present drawing the wisps of hair on the model's forehead lead to a hint of linear tracery round the nostrils and on the cheek, but in other drawings in the series it becomes an intricate, web-like all-over pattern, and the effect is at once sensual and hieratic and so profoundly enhancing that I am a little surprised that professional beauties have not tried to incorporate it in their make-up.

It is several years since Graham Sutherland held a one-man show at a dealer's gallery. From time to time a group of works appears in a mixed exhibition, but it is always tantalisingly small, and one doesn't obtain a clear sense of the way he is going. The Coventry tapestry and the portraits must have taken up a good deal of his time, but I have an idea that if one could see a really representative collection of the work done in the last three years it would reveal that the lyrical aspect of his art has been uppermost. The most

3

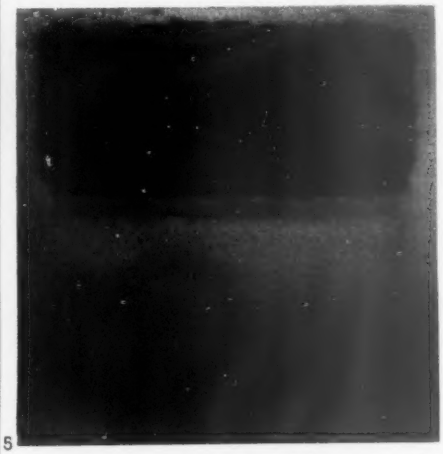
recent of his paintings to be seen in a London gallery is a green and brown still life of apples and scales, painted in May of this year, 3, which was included in the Arthur Jeffress exhibition of work by five English painters. The way in which the apples are painted reminds one a little of Braque, but in the process of changing them into aesthetic counters the artist has not entirely closed his mind to the idea that apples grow on trees, and it gives this little painting a rougher, less secure but more flavoursome poetry than a Braque would have.

A few months ago, the Lefevre Gallery held the first London exhibition of a young French painter named Jean Commère, and sold every picture. I thought he used a rather obvious formula very seductively, but in his numerous oils of wheatfields, where the corn was written on an expanse of golden yellow paint, he did not succeed in avoiding monotony. In a large new work called *Velodrome d'hiver*, 4, included in a

4

mixed exhibition at Lefevre's, the formula is the same. Commère has even retained his wheatfield yellow as the predominant colour, but the marks on its surface define a vast and busy scene and turn it into a brilliant effect of artificial light mingling at the edges with the fading daylight of a winter's afternoon. His line picks its way into the far corners of a cavernous interior as effectively as a relay of loudspeakers.

A large picture by Mark Rothko, *Blue Cloud* 1956, 5, dominated an exhibition at Gimpel Fils which included notable examples of the art of Dubuffet, Soulages, de Staël and Riopelle. It depends entirely upon the persuasiveness of a platonic relationship between four featureless oblongs of colour. The area of blue has the look of being in front of the others because a strip of light brown which divides it off from an oblong of orange-red functions as a shadow. These three colours are painted on a colder red which emerges as a broad edge to the canvas. I should say



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that Miro was the point of departure for Rothko, and that he was an influence in the sense that certain aspects of his art probably represented for Rothko the last layers of perturbation veiling a world of pure contemplation. The art of Rothko seems to me to be the most valid of all the cleansing operations undertaken by twentieth century painters. It is baffling and mysterious in its simplicity, and I know that many people only find it an insult to their intelligence; but if by some miracle Rothko's attitude to painting were to prevail we should all be on the way to

6

coming converts to Zen Buddhism.

Lynn Chadwick's exhibition at the Arts Council Gallery included the works which gained him the sculpture prize at last year's Venice Biennale, and disclosed an adept of the sculptural object. Like the work of Kenneth Armitage (who will, I understand, represent British sculpture at the next Biennale), his sculpture tends to arouse associations with building and cabinet-making. If an Armitage sometimes looks like the barbed fortification walls of a tropical village or an upturned table, Chadwick's 'Teddy Boy and Girl' reminds one of English Perpendicular, and his elegant *Beast*, 6, is a kind of organic sideboard. The fundamental difference between them is that Armitage has a warm and rounded sense of humour and Chadwick a cool, angular feeling for the macabre. This gives Chadwick the advantage of appearing to be more serious.

The award to Chadwick annoyed several English critics because for some reason best known to themselves they are convinced that the big international prizes usually go to geniuses. Chadwick is in fact well-placed, as a sound academic modernist, to be in the running for many more prizes, and may well prove to be as valuable to our prestige abroad as Ben Nicholson.

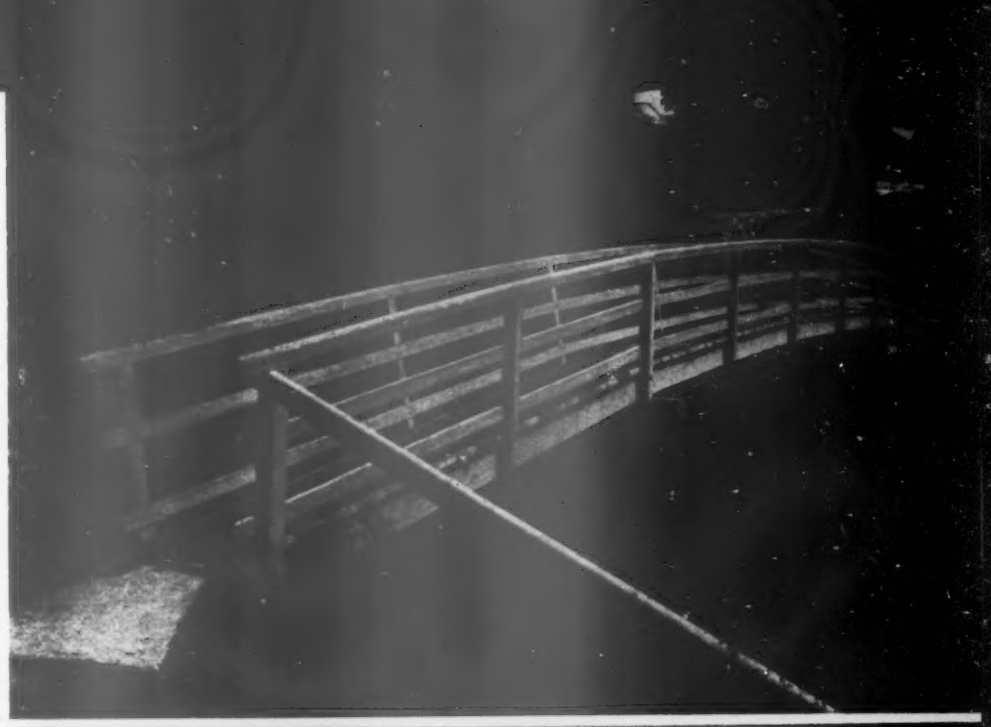
Robert Melville

FUNCTIONAL TRADITION

OCCASIONAL BRIDGES

The footbridge presents such a simple problem (to throw a pathway that need carry only the weight of a pedestrian over a river, road, canal or railway and furnish it with a handrail for safety), and invites such a straightforward answer, that it is not surprising that we can often observe in footbridges that direct relationship of means to ends which is the basis of the functional tradition. Moreover the modest role played by a footbridge does not encourage the designer or builder to confuse its structural simplicity by applying the kind of self-conscious architectural treatment often thought necessary in more ambitious edifices.

But this does not mean that the simple footbridge is without subtlety. Nothing could be more elementary in conception than this timber footbridge over Shiplake lock on the Thames, 1, yet the line of its gentle rise towards the centre and the way the handrail is canted outwards (logically responding to the fact that the body needs wider passage-room than the feet) gives it liveliness and expressiveness.



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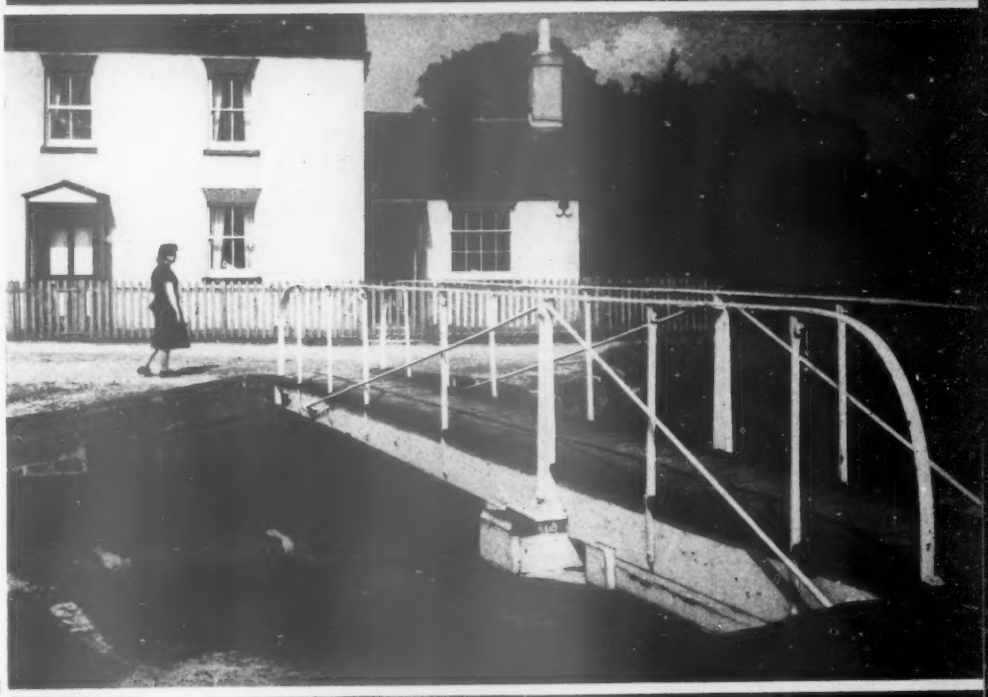

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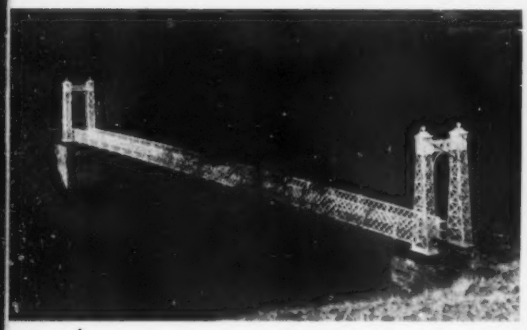
The trestle, braced-girder and true arch traditions in footbridges are represented respectively by these examples from Shiplake, 1; *the Stroudwater Canal,* 2; *and Boston,* 3

Another canal footbridge, 2 (at the junction of the Stroudwater canal with the Gloucester and Sharpness ship-canal), shows the same thing done simply and elegantly in iron. The relative heaviness of the platform is due to this being a swing bridge. 3, on the other hand, is a fixed bridge of far larger span, and is typical of the beautifully economical engineer's cast-iron bridges of the early nineteenth century. It crosses the West Fen Drain near Boston, Lincs, and is marked 'cast at Butterley 1811.'

The suspension bridge is an even more elegant type because elegance is inherent



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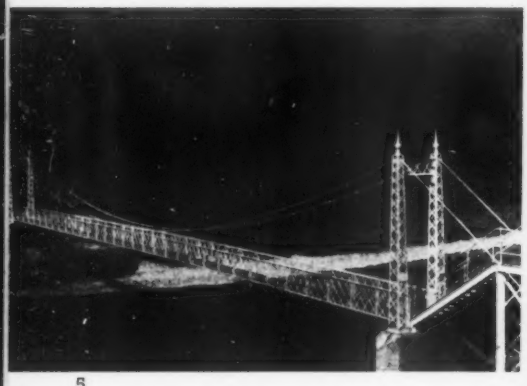
in the form of construction instead of being dependent on refined detailing. The examples illustrated here possess both: 6, a white-painted iron footbridge across a stream just north of Lewes, Sussex—it leads from a public footpath into the grounds of a private house; 4, a more ambitious example, with lattice-work towers and handrails, across the Goyt valley near Buxton, Derbyshire; 5 and 7, a similar bridge, of even greater delicacy, at Cambus-O'-May, near Ballater, Aberdeenshire, built as recently as 1905.

A separate category of iron footbridges, with its own traditions, is provided by the bridges 'except by which passengers may not cross the line,' that are part of the traditional furniture of railway stations.



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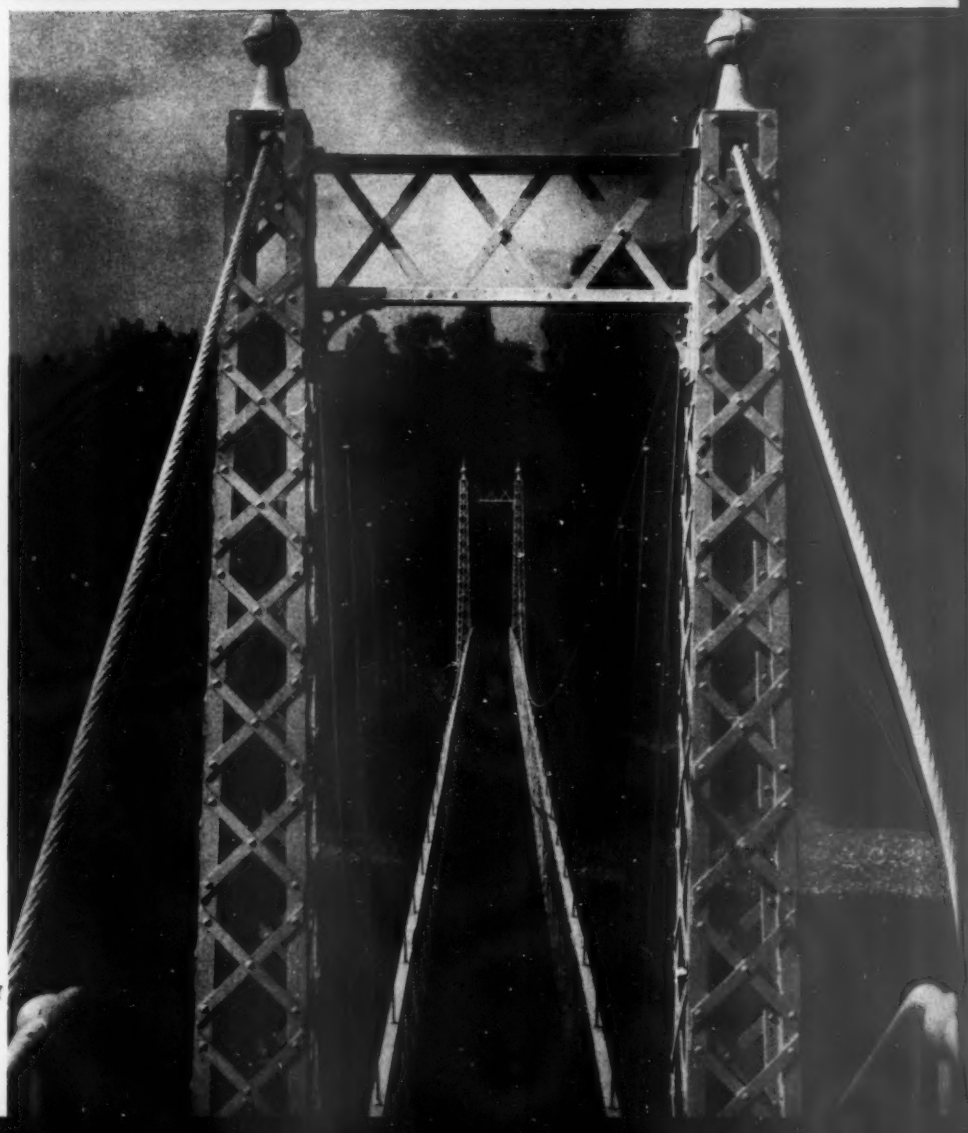

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occasional bridges

Suspension bridges are the queens among footbridges: these graceful and aptly detailed examples are from Lewes, 6; Buxton, 4; and 5 and 7, almost diagrammatic in its reduction to essentials, is at Cambus-O'-May, near Ballater.

They take many forms*—straight or arched, roofed or open—but most of them have sides of strap-iron lattice-work that give them the lightness and transparency possessed by this typical specimen, 8 and 9, which spans a siding at Charlesworth, between Hyde and Glossop. J.M.R.

*Some of these have already been illustrated in the REVIEW: e.g. in June, 1942.

occasional bridges

Most familiar of all types of footbridge, and to most of us also the most familiar exemplar of lattice trusses, is the sort by which notices throughout the land exhort us to cross the railway line. This copy-book example of Functional Tradition elegance and straightforwardness crosses a siding near Glossop.

8

9

COLOUR

FALU RED: Sweden's Landscape Colour

We see so many examples of Sweden's modern buildings in the architectural magazines that we tend to forget her many old and beautiful buildings—especially the vernacular timber architecture of the countryside. 56 per cent. of Sweden is covered with forest. It is natural enough, therefore, that even today most of her rural buildings should be of wood.

Softwood buildings need protection, especially in a rigorous northern climate. The traditional protection of wood buildings in Sweden is of a remarkable kind, remarkable for three reasons—its excellent preservative qualities, its cheapness and, above all, its colour. There is no lovelier building colour in the world than the traditional Swedish preservative paint called Falu Red—a rich, warm, winey red which is hard to describe in words.

The paint is almost exclusive to Sweden, though it can be seen across the borders in Norway or Finland, and even far away 'out West,' where it may sometimes be found gladdening the nostalgic heart of some Minnesotan settler from Scandinavia.* It is so typically Swedish, indeed, that Strindberg once declared that the national colours should be not blue and yellow, but green and red—the green of the pine woods and the red of the houses. The colour harmonizes in a magical way with the landscape as a perfect contrast to the green forests and the grey outcrops of granite, creating vivid focal points to enliven a landscape which, with its eternal pine, birch, lake and rock, tends to become monotonous. Strangely enough, the red paint itself never grows wearisome, perhaps because it varies subtly in tone from place to place and according to the time of day and season of the year. Moreover, its bouquet, like that of wine, is enhanced by age. Reflecting the evening sunlight on the barren skerries of the west coast in the dream-like clarity of the northern summer, the colour, though never garish, is fantastic in its brilliance. Among the whites and greys of winter it is more quietly gay. It is a lyrical colour and has been an obvious inspiration for a host of Swedish painters, especially of nationalists like Carl Larsson, Carl Wilhelmsson and Anders Zorn. As the Swedes would say, the colour creates

* Red paint is often used on farm buildings both in Canada and the USA and the author has tried to discover if there is any connection between Swedish red paint and that used in Canada and the States. Was it brought to the West, for instance, by Scandinavian immigrants? The answer seems to be an inconclusive no. The largest manufacturers of red ochre paint in Sweden, the Stora Kopparbergs A.B. write: 'The use of red ochre in USA and Canada hardly could derive from Sweden as, but for our factory in Falun, there are only a few smaller manufacturers who—on a very limited scale—produce red ochre out of iron pyrites. None of us exports to the above-mentioned countries. Whether the red ochre, used over there, is based on the same origin as the Falu red, may also be questionable. Red ochre for buildings is, as you know, also produced at certain ironworks by glowing of basic iron-sulphate. May be that the idea of using red ochre on buildings in USA and Canada derives from Swedish immigrants. We have ourselves during the last few years found a special interest in particular from Swedish-Americans in obtaining importation of red ochre from Sweden to USA. However, our production just covers the use of this colour in Sweden and the export to the Scandinavian neighbour countries, Norway, Finland and Denmark and to Balticum and Belgium. At times this export has amounted to nearly a quarter of the whole production. The total production amounts during normal years to about 2,300 tons.'

Information has also been received from the National Research Council of Canada, who write: 'We have contacted Dr. C. Y. Hopkins of the Protective Coatings Division of the National Research Council, and he advises that red ochre used for Canadian farm paints is from bog iron ore deposits. It is essentially a hydrated iron oxide, very finely subdivided, and can be mixed directly with the vehicle with no further milling being necessary. This type of paint has served its purpose very well. It is gradually losing favour for the gloss milled paint that can be supplied by manufacturers in a variety of colours. He thinks that the availability of a cheap pigment has had more to do with their use rather than their adoption by Swedish immigrants. We believe this to be also true for United States farm buildings.'

falu red *wooden buildings in Karlbo, Sweden, painted the distinctive Falu Red (from* En Bok om Rodfarg, *by Romdahl, Erixon, Johansson and Lundberg).*

stämning (*Stimmung* in German; Atmosphere is perhaps our nearest English word).

The sentimentalist will claim that the colour is just right in the Swedish landscape because it comes from a natural, indigenous material, and is no sort of soulless, modern import. Certainly the attempts to produce the same effect by synthetic means have so far not been successful.

Right back to the Stone Age red paint has had an appeal, especially among those who live in direct contact with nature, not only for its decorative quality but because, in its likeness to blood, mystic associations with the power of life itself have been attributed to it. In small ways it was used in Sweden right back in the days of the Vikings, on wooden chalices for instance. Later it was used on small areas in building work such as doors, but it was not applied to buildings to any great extent until the late sixteenth century and then mainly to preserve the more sensitive parts such as outside angles, roofs and doorways. The first use of red paint on the whole exterior walling occurred in the middle of the seventeenth century, but a hundred years passed before red paint came into its own when production of the paint began in the Falun copper mine. It then became cheap enough to use on the houses and barns of the peasants. Hitherto it had been applied only on the more important buildings—manor houses, churches and vicarages. Today it has lost its early snob prestige and, to distinguish them from the common herd, the more important buildings in the country and smaller towns are now usually painted in white, grey or buff—that is, where ardent nationalist architects like Cyrillus Johansson have not had their way.

Though the red colour was, no doubt, adopted for its appearance, and perhaps, as has been suggested, for mystic reasons, its real purpose was to preserve the thinner sawn timbers of the framed buildings which superseded the solid, more durable and untreated axed work in the seventeenth century. Preservation also became more necessary as the cost of timber rose.

What exactly is this Falu Red, this ochre paint of Sweden? The foreign visitor will have some difficulty in finding out. He will be told with a shrug: '*Jo, det är vanlig rödfärg*'—it's just ordinary red paint—as though the question were foolish. There is, however, one certain source of information—the *Stora Kopparbergs Bergslags Aktiebolag*, 'the oldest trading company in the world,' founded in the thirteenth century and still going strong as one of the largest industrial concerns in the country, and as owners of the ancient copper mine at Falun in Dalecarlia.

Before about 1750 the raw material for red paint came as a by-product in the processing of sulphur and vitriol carried out in various parts of the country. Then large scale mining of *Rödmull*, or Red Earth, began at Falun, and to a lesser extent in other places. The Falun mine still produces some copper ores but mainly other minerals and also Red Earth, which contains hydrated iron oxide, mica and other minerals combined through the centuries by natural physical and chemical processes. The earth is crushed, sieved and washed to separate the natural fine-grained pigment from coarse material. To bring out the colour it is then carefully burned. According to the amount of burning, the colour will vary from yellow, through browns and red to deep violet and even black. The product receives a final grinding and sifting before it is packed into paper bags or barrels.

Though the composition of the powder varies, the red pigment is always uncombined iron oxide which amounts to about 33 per cent. Some iron oxide is also combined with other minerals. The following is a typical recipe:

Iron Oxide, 40%; Aluminium Oxide, 6%; Magnesium Oxide, 5%; Calcium Oxide, 2%; Sulphur Trioxide, 1%; Silicon Dioxide, 42%.

Two kgs. of ferrous sulphate are mixed into 50 litres of boiling water into which is stirred 2 to 2½ kgs. of finely ground rye flour. After 15 minutes of boiling 10 to 12 kgs. of the red powder is added with vigorous stirring. The paint is ready after another 15 minutes of boiling.

The paint continues to be widely used on Sweden's timber buildings, usually in conjunction with off-white door and window architraves. It is even applied sometimes on concrete work, though for purely decorative reasons. It is so characteristic of the Swedish landscape that if it should ever be replaced, some virtue would seem to have left the land, a virtue not purely aesthetic, but also one of association, connected with the country's pride and independence. Red in Sweden means *Falu* Red. Its significance is purely national.

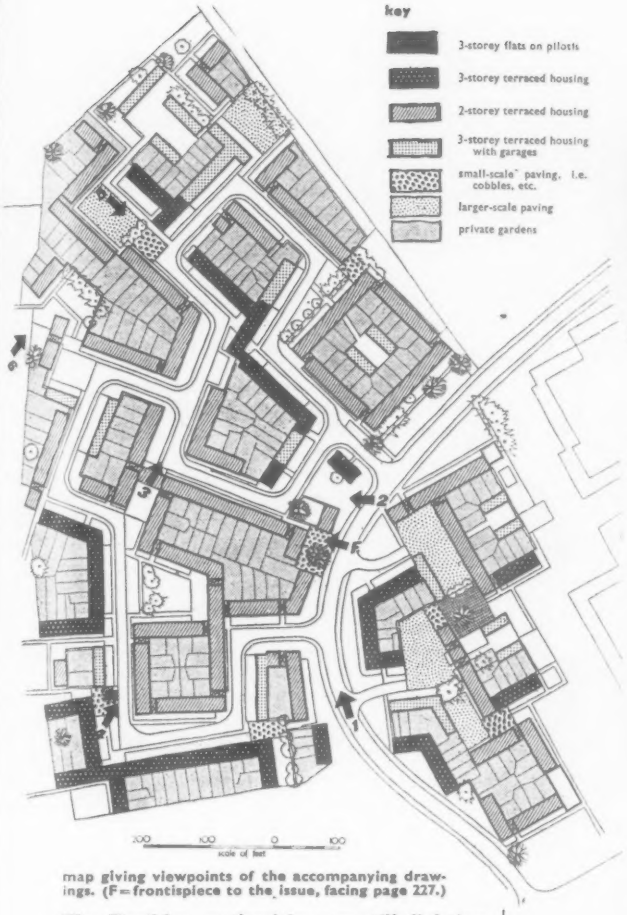
Eric de Maré

TOWNSCAPE

GHYLLGROVE BASILDON

The elements of this housing scheme (architects, Lionel Brett and Kenneth Boyd), like those of many other estates, consist of dwellings, footpaths, roads, trees, gardens and so on.

But it differs from most layouts in the way these parts are put together. The layout is not orthodox. Nor, according to the New Town authorities, is the density: at 22·4 dwellings per acre it is twice that normally used in the New Towns and is approximately that of the London squares illustrated in Counter-Attack, page 424.

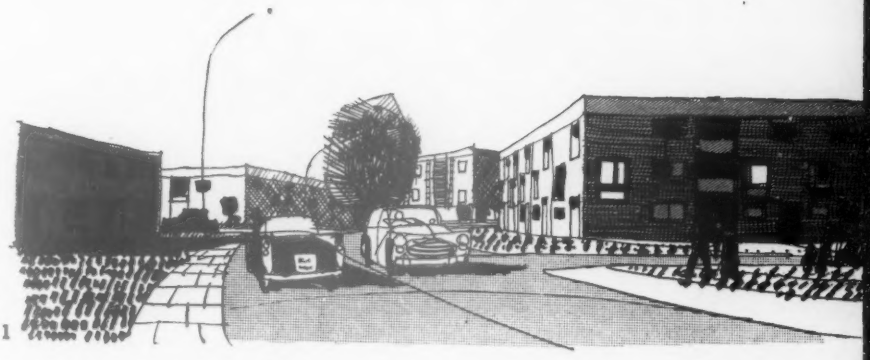


map giving viewpoints of the accompanying drawings. (F=frontispiece to the issue, facing page 227.)

The Basildon authorities are still fighting this, but have only been able to put forward the suggestion that the poorer migrants should go to the less dense areas and the richer migrants should occupy the denser estates, which is in its way a back-handed compliment.

The first thing one notices about the plan, I suppose, is the marked contrast between the major and minor roads, not only are they different in width but in *character*. For whereas the through road is designed to help the motorist, the sight lines are good, the curve easy; the roads inside the estate consist of a rectangular meander of short travels. In the first case ease of traffic motion is paramount, in the second case, inside the estate, it is important to keep speed down for the safety of pedestrians and also for the concealed benefit that, by reducing speed, sight lines at corners can be sharper and consequently the streets can be built up as individual places and not left an amorphous jelly of splayed corners.

In striking contrast to the circuitous route of the motor car in the layout is the direct access arranged for the pedestrian, for the person who is standing up and not sitting down. Pedestrian ways intersect the whole layout in the most economic and direct fashion possible; under buildings, by the sides of roads as orthodox pavements, becoming paved



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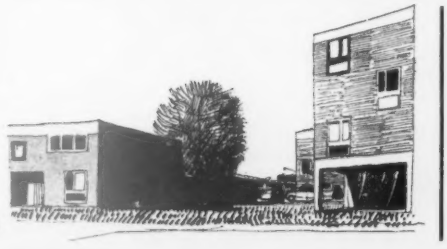
1, the traffic road sweeps through the site and the ground is frankly given up to the interests of traffic. . . 2, but from the road the internal structure of the plan is glimpsed . . . 3, built up streets which have a sense of locality and exploit light and shade . . . 4, pedestrian map and pedestrian



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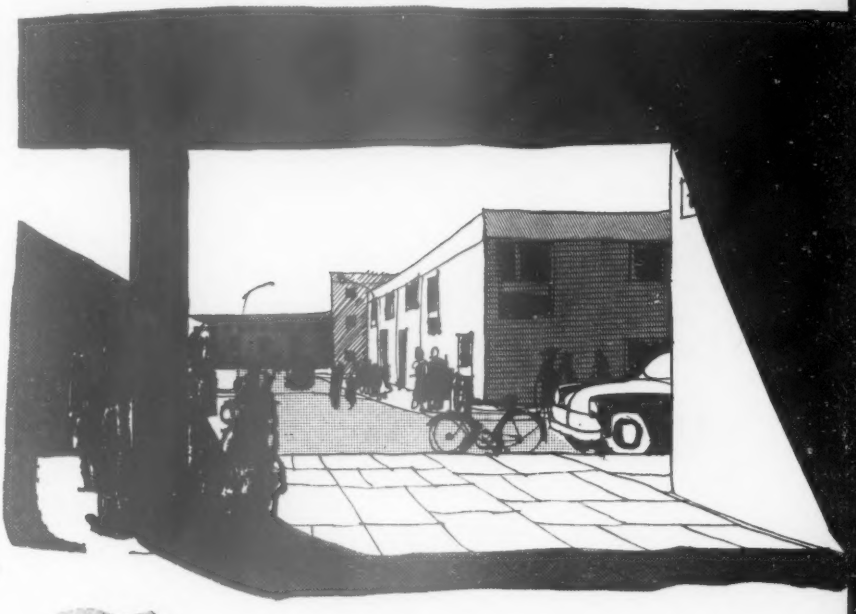

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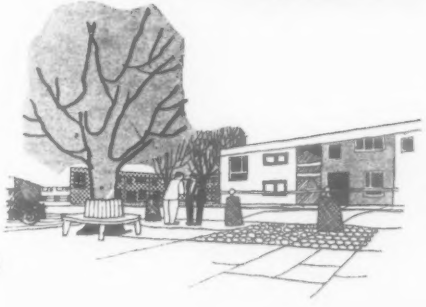

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areas . . . 5, mingling with areas of multiple use where the car and pedestrian has equal right, but the safe place for children playing is underneath trees . . . 6 (overleaf), the perimeter is considered. Housing does not turn its back (or back gardens) on open space but sucks it into the scheme.

5

6

areas under trees: they give the pedestrian a real command of the layout.

One of the devices of this layout is the insistence on front and back, that is to say public space and private space. In so many cases the public space is devitalized and the private space frittered away by trying to hide the services, the milk, the dustcart, etc. Here the back gardens are free from the concrete paths of decorous services and are thus able to build up to a *real* area of seclusion while the public roads are used for their real purpose.

Walls, instead of transparent fences, are employed in the layout to preserve this sense of enclosure. The public space is organized, as we have seen, into traffic roads and pedestrian ways, and to cater for all occasions these separate systems expand from time to time into nodes—there are car parks, there are pedestrian enclosures, sometimes the two overlap in the form of a square with pedestrian priority. In this way vitality and variety of space use is introduced whilst trees are used strategically to enclose or to punctuate.

The continuity of street frontage, which is remarkable and to many people unorthodox, captures sunshine and shadow. The direct pedestrian routes which penetrate under buildings mean that you change, dramatically, from one urban climate to another. The semi-detacheds know nothing of this.

What will be the outcome when it is built? Will the devices of Townscape produce a sense of locality and vitality? We shall see.

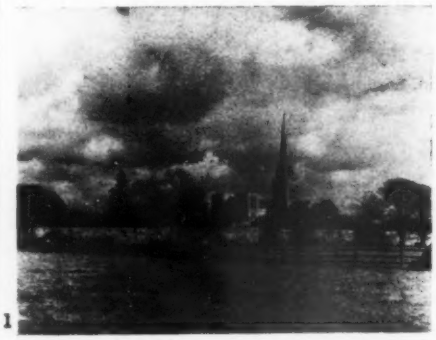
Gordon Cullen

COUNTER-ATTACK

WESTGATE FIELDS, CHICHESTER

The Westgate Fields are in danger.* Two schools and a ring road are proposed on them and a ten-year-old decision to allow factories along the whole strip beyond the railway is about to be implemented. We think that all of this is wrong: that the proposals (due for Public Inquiry on October 8) should be turned down, that the outline permission for industry should be revoked, that there should be no tampering whatsoever with the Fields as they are and with the continuous segment of countryside beyond them extending to Chichester Harbour: a dyed-in-the-wool, preserve-it-at-all-costs attitude. Why?

The reason, quite simply, is that the Fields are more valuable than any alternative that could be named. This is the one cathredral city where it is possible to walk from intensely urban—market-cross, shops, public buildings—to intensely rural—real cows and real cow-dung—in a few yards, and then, to see, on turning around, the image of the cathedral city in a form which almost knocks the viewer over, 1. Beyond that, the viewer can then walk from the Fields over the railway out to Chichester Harbour and Appledram without any break. It is a permanent pick-me-up, a release, a free dose of psycho-analysis for a muddled world, and the population of this island is slowly coming to realize it. The question of the fate of one or two preserved views of the cathedral is the least of it: the true issue is something much wider and universal, hardly visual at all, something as basic as salt spray at the seaside, or the moment of sanctuary under a tree from a heavy storm, or the shock of going from a crowded room at night into the dark street outside.



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And there is nothing else like this in the country: the Westgate Fields are the last of their kind. Our attitude is what it would be to preserving say the last unspoilt beach in the country: whatever the claims were, the real 'national interest,' the power to enrich the individual life of each citizen, is preservation, at any cost. This is not only *a* clean joint between Cathedral City and Country, it is *the last* clean joint between Cathedral City and Country.

This isn't hysteria: it happens to be quite literally true. If you add up English cathedral cities in this way you will come out with, at most, two others—Salisbury and Wells—with anything like countryside near the centre. In both of these the approach is mediated via the close—and in Wells the centre is barely a town anyway; nowhere but Chichester is there the sudden shock Town/Country, Enclosure/Open Space, Crowds/Emptiness, Complexity/Simplicity. The countryside laps the walls of the city, 2, as vividly as the lagoons lap the city walls in the northern approach to Mantua. And no half measures with a lot of open space left, no good design of buildings, no new views from fly-over bridges will *ever* compensate for this: it must be all or nothing.**

Ian Nairn

[** The Bureau's proposals are in fact as follows:

(*a*) for the Fields, one school could be sited at the extreme west end, beyond the River Lavant. This can be tested on site. A screen of poplars should be grown on the north side of the railway to hide the existing creeping industry; the rest ought to stay just as it is.

(*b*) The other school should find another site in Chichester, for example, the open space on New Park Street which could be exchanged for the disused quarries at Rumboldswhyke, which could make an admirable public park.

(*c*) The ring road would improve traffic a little (so would a road through Salisbury Close or Norwich Close—or almost anywhere) but not much. Buses would still want to go through the centre and there would still need to be traffic control at the Butter Cross. The gain (chiefly the illusory prestige value of having a completed ring road) isn't worth the loss.

(*d*) The industrial development should be revoked and sites allocated south-east of the town where more development will at worst link up with Bognor and the litter which stretches along the Sussex coast as far as Brighton.]

2

* See Counter Attack, A.R. Dec. 1956, page 364, and also A.R. June, 1957 page 451.

SKILL

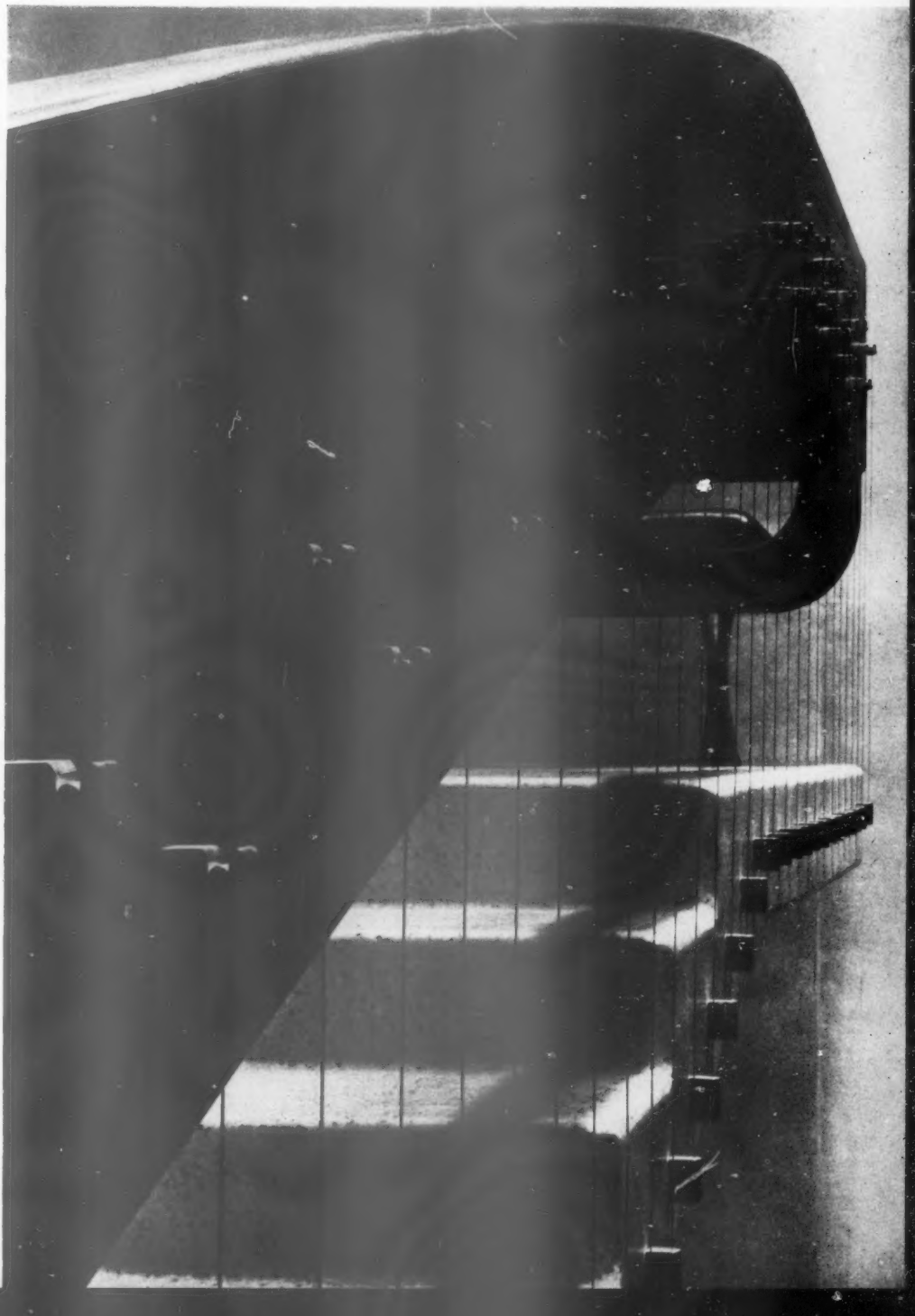
A MONTHLY REVIEW
OF BUILDING TECHNIQUES & INDUSTRIAL DESIGN

1 interiors
2 design review
3 techniques
4 the industry

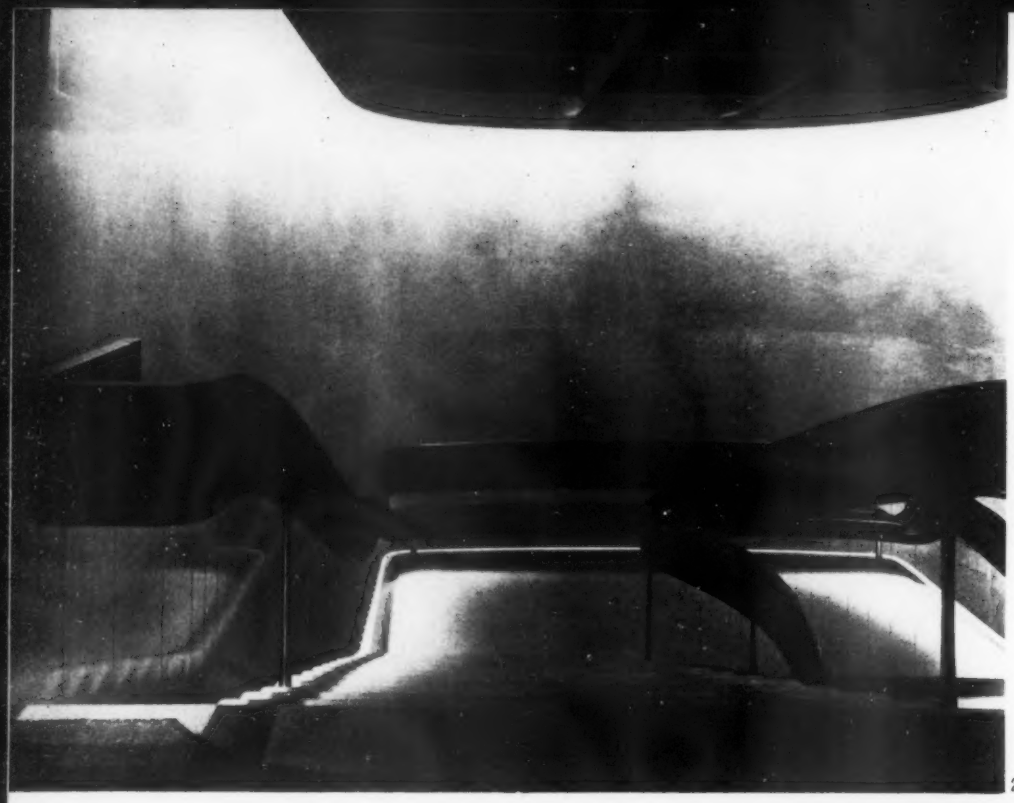
1 INTERIORS

DEPARTMENT STORE STAIRWAY, STOCKHOLM

Architect: Arne Rudberger; assistant architect: Stig Lönngren



1, *the mahogany banisters. The protective wires are in sprung casings.*



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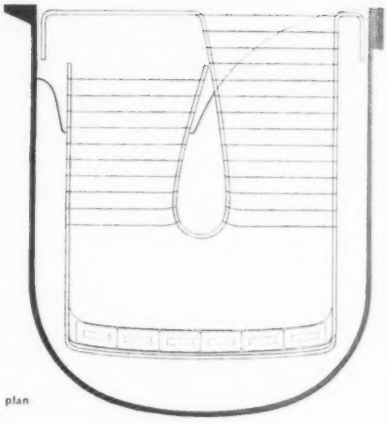

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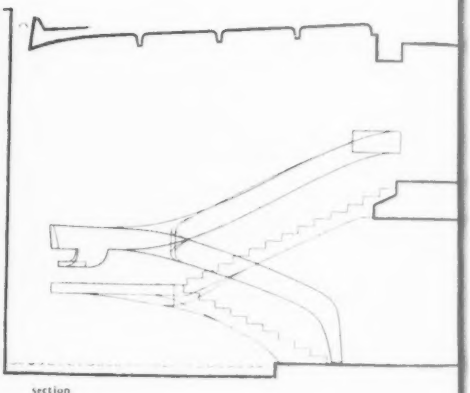
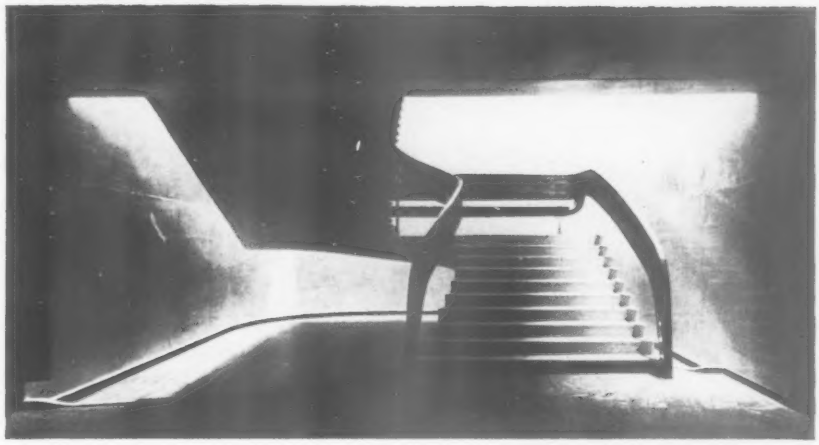


2, the top of the staircase, with the special concrete shell ceiling over it; the stair surface is finished with an aggregate of green marble and dolomite. 3, the half-way landing; the leather seat covers are black.

The MEA store is in Norrmalmstorg, in the centre of Stockholm. The main stairway between the ground floor and basement of the store is cantilevered and pre-stressed in both flights. The reinforced concrete consists of standard and white cement, which is ground down about $\frac{1}{4}$ in. after casting, with graded aggregate of dolomite and green marble. The banisters are of solid Honduras mahogany, and the fittings are chromium-plated steel; the lower ends of the protective wires are in sprung casings. The ceiling consists of crossed concrete beams supporting a concrete shell approximately $2\frac{3}{8}$ in. thick.



4, general view at the bottom. The surrounding walls are faced in stucco lustro, and the pool is marble-lined.

BAR IN BRIGHTON

Designer: John Carter

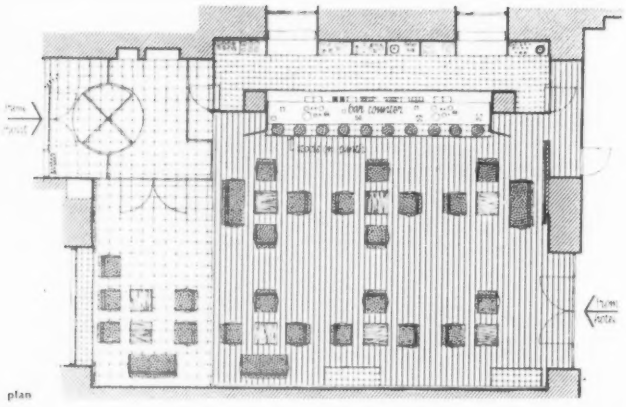
The Metropole Hotel, in which the bar is situated, faces the West Pier. A partition wall at the south end of the bar was removed, and the sea front elevation opened up with a large window. The existing revolving doors were screened, partly as a draught protection, by glass panels set in satin brass frames, with their surfaces etched with motifs taken from diatomic marine forms. The bar is entered through armour plate doors. Over the entrance is a pergola of wooden beams, either ebonized or painted white, from which an illuminated false ceiling is suspended. An existing travertine floor in this section was retained; the ceiling over the whole bar, with a pattern of 4-in. squares in relief, is new.

The bar is set in a rosewood surround, and framed in an ebonized

6

5

5, the bar looking towards the sea front entrance. 6, view from behind the bar.



plan

BAR IN BRIGHTON

moulding; the flying wings at either end screen the service openings. The rectangular panels on the facing walls are also rosewood, and inset amongst them are light fittings of brass and transparent plastic, backed with panels of various colours. The wall and ceiling paintwork is white; the cupboards behind the bar are pale blue. With the exception of the wall lights, the carpet and all the furniture and fittings were specially designed for the scheme.

2 DESIGN REVIEW

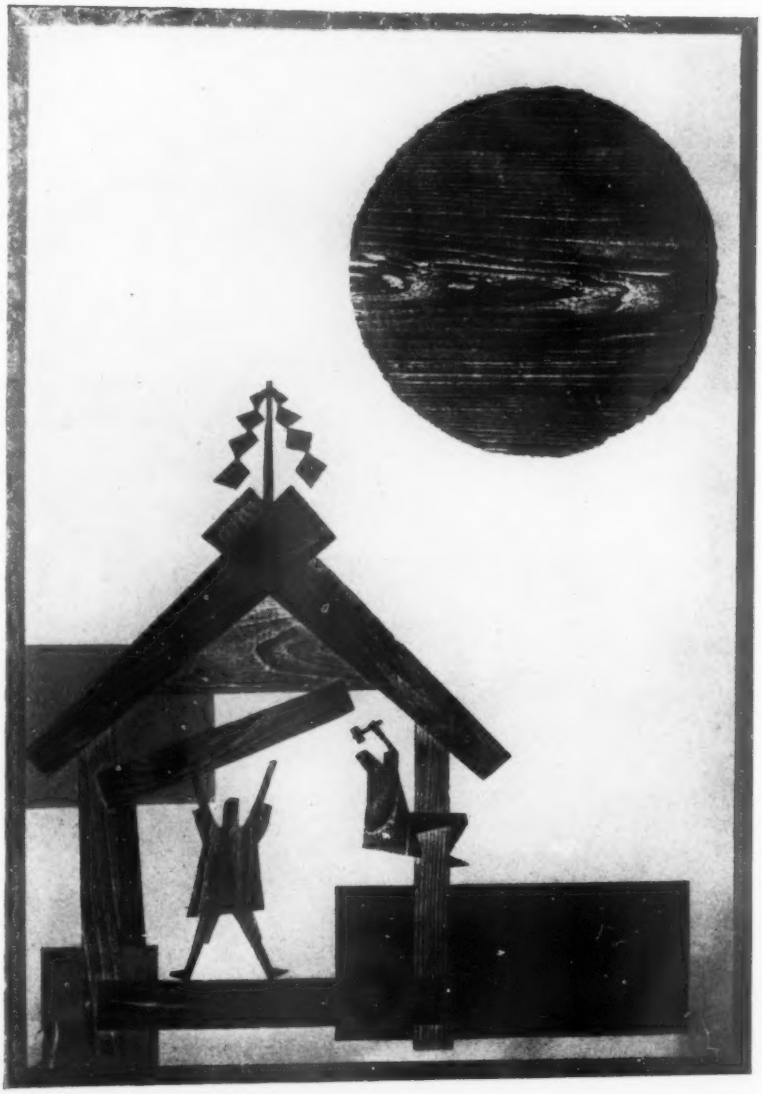
POSTER COMPETITION: VARIATIONS ON A NATIONAL THEME

National characteristics are always easily recognizable by those who come from other parts in the world; but seldom are those characteristics understood in more than their superficial trappings. An Englishman imitating an American accent, for example, will hardly fail to convey his intentions to another Englishman, though to an American the exaggerated inflexions will certainly lack conviction. In the world of film creations such misunderstandings are common, and it is only too easy to deride the spuriousness of a Hollywood setting intended to convey the East End of London, while remaining happily convinced of the authenticity of a set portraying the Kasbah. The failure in global terms of this easy contentment with popular interpretations of national themes was clearly demonstrated in a recent international poster competition for the MGM film 'The Tea House of the August Moon.'

Seventeen countries submitted posters which had already been selected by their own judging panels in a series of qualifying contests, the final selection being made in the USA by William Lieberman, Curator of Prints at the Museum of Modern Art, A. Hyatt Mayor, Curator of Prints for the Metropolitan Museum of Art, and Theodore J. H. Gusten, Executive Director of the International Graphic Arts Society. It is perhaps significant that the winning poster was by a Japanese artist Kaora Ueda, who conveys in his simple abstractions a symbolism infinitely more expressive than the conventional Japanese motifs that govern the designs of the two posters chosen as the best of the British entries.

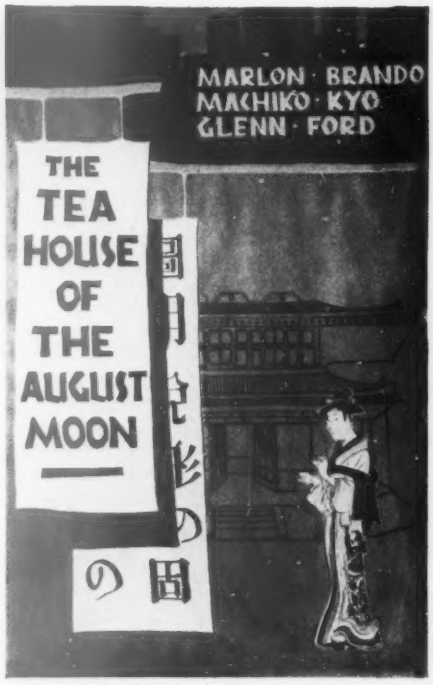
In Ueda's design, the suggestion in the teahouse itself of simple post and beam con-

[continued on page 281



1, *the winning design by the Japanese artist Kaora Ueda.*

2, the poster by Michael Margolis which won first prize in the British qualifying contest.



3, the second prize-winning design from among the British entries by R. G. Warner, Sir Gerald Kelly, Edward Le Bas and W. A. Cathless judged the British entries.

continued from page 280]

struction typical of traditional and modern Japanese architecture, the clever use of the wood grain both as a linking theme and more particularly to express form in the smocks of the two figures, and the juxtaposition of dynamic angular shapes and the great disc of the moon, combine to produce a powerful and dramatic image that benefits from the lack of lettering which, though necessary, is often obtrusive.

Having secured by means of this elaborate and far-reaching competition a film poster of unusual merit, the film company ignored the result in favour of the conventional and uninspired designs which finally adorned the hoardings: it is hard to understand why.

3 TECHNIQUES

FASCIA LETTERING

by John Sharp

The problem of lettering on buildings is a vexed one, and with many architects engaged in designing factories, shops, and offices, one would hope to find plenty of good examples about: in fact good examples are few. This month John Sharp recounts the different kinds of letters marketed in this country, in the hope of helping architects to think more conscientiously about this problem.

It is surely legitimate to display the name of a company using a commercial premises in a way that is in scale with the architecture. Certainly many clients ask for it and a few are satisfied, but others have to wait until the architect is safely out of the way before they call in a sign contractor to give them what they want; the result of course is most unsatisfactory—in some cases disastrous—and only confirms the architect in his original opinion.

Surely it is time for this to end, for it is only when architects are willing to consider the lettering as an integral part of the building that the temporary and added nature of many signs and symbols will be overcome.

The most familiar use of lettering is for shop fascias, and one of the basic requirements is that the lettering should be distinctive and easily recognizable from that of their competitors. This has led to the reproduction of many trade symbols, some of which have been designed for other applications and are not suitable for fascia work, and here there is scope for the use of bold faces and lower-case letters in keeping with the revived interest in lettering in other fields.

As many of the shops open after dark, they have a legitimate demand for illuminated signs and fascias, and such has been the technical development of illuminated forms in recent years, that the typography and layout could be of as high an order as any solid letter, if architects were to take a hand in the design. This increased demand in illuminated signs is typified by the recent installations at several bank premises.

faces

The Victorians used many wonderful faces for their shopfronts, playbills and so forth, and some are still to be seen in incised gold leaf lettering behind the glass fascias of older shops. Between the Wars there were two opposing trends. One was a general debasement of letter forms by ill-considered geometrical discipline and exaggeration, until they became virtually illegible, and the other was the over refinement and play-safe attitude that would allow of none other than Trajan—the only true Roman—and Gill Sans Serif.

Happily most of the former have died a natural death, but the latter are still with us, and dominate the general run of applied lettering. However, since the Festival of Britain revived some Egyptian faces there has been an increasing awareness of the value of the bolder forms of capitals, and also of the advantages that lower-case letters have in legibility, and it is to be hoped that these trends will continue.

A sample letter E has been chosen to illustrate throughout this article both some of the more interesting faces and some of the different material forms. It is important to bear in mind that lettering is a specialist art, and the snags and pitfalls for those who try to make up a face of their own are many and terrible. It is worth while consulting a reputable lettering manufacturer, most of whom issue sample alphabet sheets as part of their literature, before proceeding too far.

At the moment the majority of manufacturers put a tax on the bolder letters. There is a price differential in favour of the 'standard' Gills Sans and Trajan, followed by other Roman types, with the Bold and Broad serif types much higher, in the approximate ratio of Gill Sans and Trajan 21, other Roman types 23, Bold and Broad serif 35. This is generally attributed to the lack of operator familiarity with the bolder faces, and to the use of more material. However, one firm producing perspex lettering is offering a wide selection of standard faces of equal price, with extra cost only for special faces.

non-illuminated lettering

Most of the larger producers of applied lettering offer quite a wide range of materials and finishes. They vary greatly in their durability, price, and appearance, and the choice between them is not always easy. It is not possible to give comparative price figures between different materials over the whole range of letter sizes, as some are not physically suitable for the larger sizes, and others become uneconomic. Again, it is the custom of the trade to give quotations for each sign, and there are therefore no firm prices for the separate elements which make a sign. However, sufficient typical prices have been obtained for an average letter of 12 in. high, to enable the different materials and methods to be described below in order of descending price.

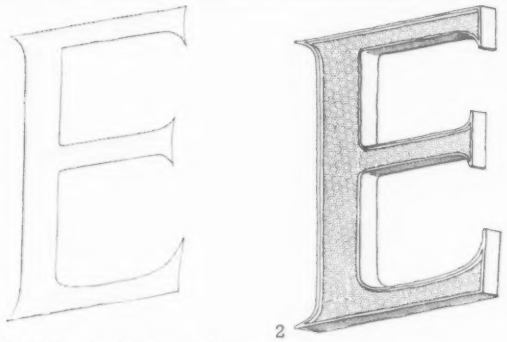
bronze. Bronze is undoubtedly the most durable material for applied lettering, and has long been used the letters being sand cast from prepared wooden forms. The majority of manufacturers present a choice between Roman or Gill Sans, in sizes varying from 2 in. to 2 ft. as their standard range. One or two will cast any face required, but as special wooden forms have to be prepared for each letter, it is obvious that outside the two standard faces there is a considerable increase in price.

There are three sections available flat, V, or filled.

Flat, as the name implies, has a flat face, and is rather dull in all but the smaller sizes.

V is cast in the reverse of the

bronze

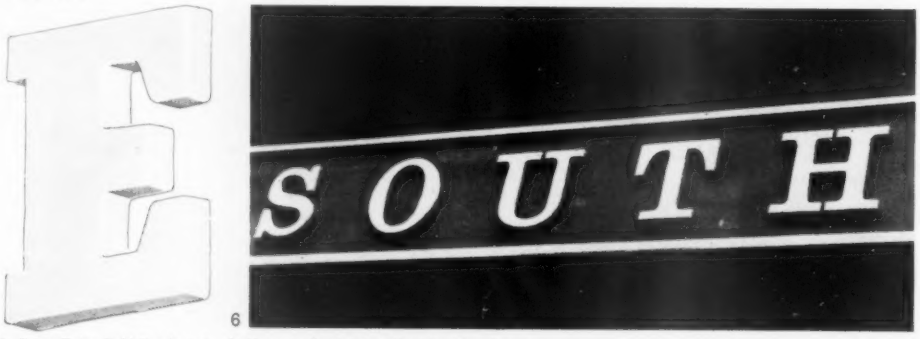


1. *basic Roman: V-section cast bronze.*
2. *basic Roman: transparent ceramic enamel filling over textured background on cast bronze letter.*

ceramic

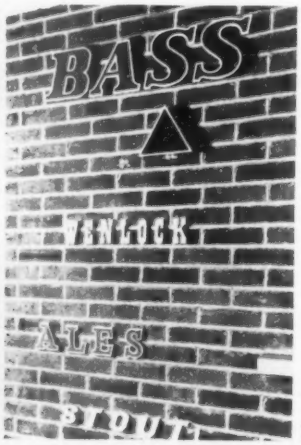
3. *Swedish face approximating to Clarendon: freestanding ceramic letter.*
4. *Swedish ceramic letters.*

plastic coated



5. *Beton Extra Bold Condensed: plastic covered cut-out medium hardboard core.*
6. *handcut wood fibre letters with plastic covering, South Africa Travel Office, Piccadilly, W.1.*

plastic



7. *built-up Perspex letters, Brompton Road, S.W.3.*
8. *Profil: two-colour solid Perspex.*
9. *cut-out Perspex letters, Bedford.*
10. *two-colour Perspex inlay letters.*

original incised Roman, preserving many of its refinements, 1.

Filled letters are cast with an edge beading to a recessed flat face. This is filled with a fired ceramic enamel. The enamels are available in a limited range of colours in which blues and greens predominate. Though ivory is used more often than any other colour, several interesting effects are obtainable by the use of transparent enamels over a rough background, giving a permanent glitter, 2; graduated colours are also possible. Naturally, as a further process is involved, enamelled bronze costs more than plain bronze. The bronze is usually finished in a self-oxidizing process, which gives the familiar sepia brown colour.

cast aluminium alloy. This is fabricated in the same way as bronze, and obtained in the same sections, which may be anodized to give a natural aluminium finish. As the metal is cheaper than bronze, it is often used as a base for stove enamelling where a durable coloured letter is required. It is also possible to use the ceramic enamel filling as in the bronze letter, and contrast it with a stove enamel colour on the beading.

ceramic lettering. A frost proof ceramic letter is imported from Sweden. This is made in limited sizes from 6 in. to 18 in. in a number of colours, and in a Swedish face which approximates to Clarendon, 3, 4. A special stand-off mounting is provided which has a rubber bush to protect the letters against traffic vibration.

Glazed faience letters can be made up to 8 ft. high for building into brickwork, the sections being up to 5 in. thick, giving a projection of 3 in. The same form can be cramped on to the face of a wall, the thickness depending on the projection required. The sections are up to 18 in. long, and the joints are clearly visible.

plastic coated lettering. Next in durability to the cast metal letters are those produced by a deposition of a thick layer of plastic over hand-cut wood fibre cores. A wide range of colours is produced and the material keeps its colour well, 5, 6.

As they are hand cut there is no limit to the faces that are available, and the sizes range from about 6 in. to 3 ft.; also thicknesses can be built up as required. The only drawback is a visual one, and springs from the fact that the plastic is applied by a slow deposition which accumulates more on the flat faces than on the corners, producing a standard radius on all edges. This does not detract from the larger letters, but on the smaller ones produces a sloppy appearance. They can be left in an exposed position for long periods without any form of maintenance.

plastic lettering. Cut plastic letters are available from many sources and there are several different materials used. Roman and Gill Sans are cut by all manufacturers, and most of them will also cut any face required. Sheet thicknesses are usually $\frac{1}{8}$ in., $\frac{1}{4}$ in., or $\frac{3}{4}$ in., depending on the letter size. It is possible to have thicker letters by lamination, but it becomes rather expensive, and if very deep lettering is required it is best to use a built-up section, 7.

A very stable letter is cut from phenolic sheet, the same material as Holoplast panels. This is brown and has to be finished with stove enamel to give colour, and its life obviously depends on the life of the enamel.

With its wide range of standard

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continued from page 282]

colours, Perspex is used by many manufacturers for cut-out letters, and additional colours are available for long runs of house symbols, 8, 9.

The material has only been used for about ten years, but in that time colour changes that have taken place in test samples have been only very slight, and the quality has in no way deteriorated.

One manufacturer specializing in Perspex lettering produces a two-colour letter by inlaying one letter within an outer edging, sticking both on to another cut out which is the same colour as the edging, 10. Its price, however, is above that of the bronze inlaid letter.

Another Perspex letter is moulded in half-round section in a Sans Serif type of face. It is available in several sizes, and the whole Perspex colour range. When made in clear Perspex it can be lined with gold leaf, which, due to the protection afforded by the letter form, has a long life and does not lose its lustre.

wooden lettering. This category includes cut-out and built-up hardwood, wood laminates, and hardboards. They are generally available in a variety of sections: flat, bevelled, half-round or V, and can vary considerably in thickness. They can be finished in a variety of media from stove enamel for the more stable fibre cores, to gilding and painting. The prices vary considerably but it is probably the cheapest basic natural material. Styles are limitless, its life depending on the maintenance it is given, 11, 12.

built-up lettering. The liveliest lettering forms are available by the use of built-up metal sheets, soldered together, making possible any required variation in face, profile, texture, and depth, 13, 14. There is also no limit to the size.

The commonest material in use is lead-coated sheet steel, but any suitable material can be used, from stainless steel to copper. With ordinary steel a surface etching is used as a rust deterrent, after which it is finished with stove enamel to any required colour.

Except for the smallest letters, the stove enamelled steel version is the cheapest method that is available, but it is essential to ensure that lead-coated steel is used, or the inside will soon be attacked by rust.

cork lettering. For a cheap, short-term letter there is the well-known range of stamped cork letters. These can be used externally for a short time, but as the cork is not sealed in any way it relies on the properties of the applied paint for protection.

fixing

Several methods of fixing are available, some peculiar to the material of the letter and its background, 15.

Taking the letter first: the solid letters are drilled and tapped to take a metal threaded screw; smaller letters of the Perspex type of plastic can have the head of a pin or screw embedded in the back simply by pushing it in when it is hot; built-up letters, being hollow, are provided with bridging pieces to which bolts may be fixed, or which may be provided with a keyhole slot. Fixing to stone, tile, or other solid fascias is by means of a metal lug grouted into a prepared hole; for sheet fascias such as glass or metal, a through screw and nut may be used. These fixings may be permanent, that is, the lug is screwed directly into the back of the letter, or they may be provided with some means of detachment for cleaning and maintenance purposes. There are several detachable fixings, the most positive of which is a bolt with a fine and a coarse thread at either end, the fine thread being screwed into the back of the letter, and then partially unscrewed into the nut on the fascia (A). A less positive fixing for smaller letters has a split pin and socket (B). A similar fixing for larger letters has a plain pin with a grub screw (C). There are two keyhole fixings, one for any letter, which entails a plate being fixed to the fascia (D), the other for built-up letters (E). Lastly the letters may be screwed direct to a metal lug grouted to the facing (F).

fascias

Often, when the fact that lettering on a building is accepted as inevitable, some very unsatisfactory things are done. Many buildings are for letting, which entails periodic changing of the displayed name, and yet fascias are built in of materials that are damaged when letters are removed. Such are the Portland stone bands on many office buildings, to which bronze lettering is applied; the resultant staining from cleaning and repairs after removal are all too frequent. A worse approach on the same type of fascia is that which only allows occasional fixings, the resultant battens completely destroying the letter forms.

Probably the best approach is one which allows for the whole fascia to be replaced when a change of lettering is required; in other words, a sheet material than can be removed and replaced with ease.

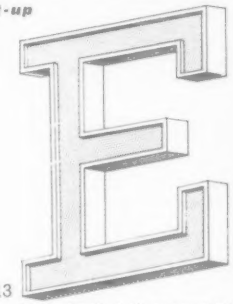
wooden

11

12

11, *applied hardwood lettering, Bond Street, W.1.*
12, *stove-enamelled wood lettering, High Holborn, W.C.1.*

built-up

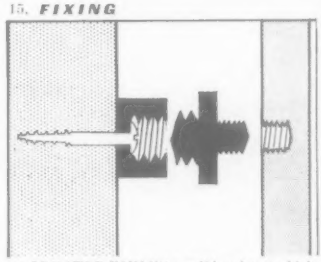


13

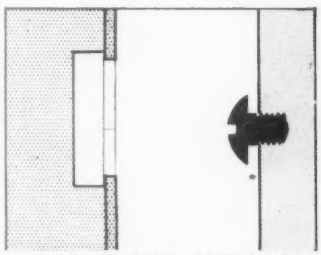
14

13, *Rockwell: built-up metal letter with recessed face and square beading.*
14, *built-up letters in enamelled lead-coated sheet steel, Fenchurch Street, E.C.3.*

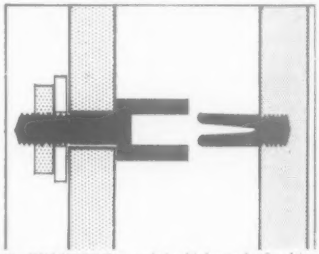
15. **FIXING**



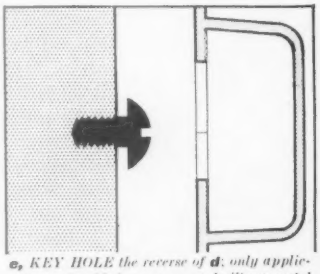
a, *LOCATOR FIXING a solid end nut which can be fixed to any surface (here shown screwed to a wood fascia) with a two screw connector which is first screwed into the back of the letter and then partially unscrewed into the nut; it inevitably gives a stand-off effect.*



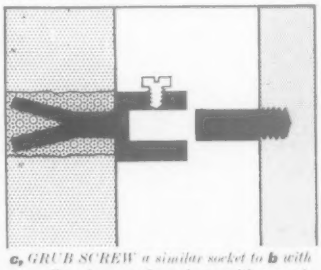
d, *KEY HOLE a keyhole plate fixed in front of a hole in the fascia, into which fixes a screw head on the back of the letter.*



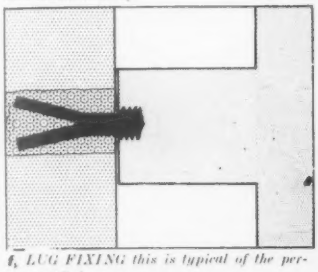
b, *SPLIT PIN a socket which can be fixed to any surface (here shown with through fixing to sheet fascia) into which fits a split pin fixed to the letter.*



e, *KEY HOLE the reverse of* **d**; *only applicable to moulded perspex or built-up metal forms. [N.B.—***a-e** *are detachable for cleaning and maintenance.]*

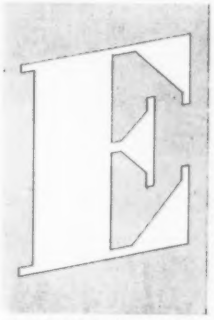


c, *GRUB SCREW a similar socket to* **b** *with a small grub screw (here shown with a grouting lug to stone fascia) into which fits a plain pin screwed to the letter.*



f, *LUG FIXING this is typical of the permanent fixings.*

glass



16

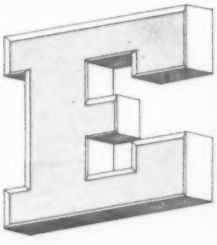
17

16, *Ultra Rodoni: sand blasted marble inlaid with sand-blasted glass.*
17, *incised gold leaf letters behind a painted sheet of glass, Cannon Street, E.C.4.*

faience

18, *faience tile lettering.*

illuminated face



19

20

21 23 19, *Egyptian: illuminated letter of built-up metal, with enamelled sides, stainless steel inward sloping bevel and coloured Perspex face.* 20-23, *'Embassy' signs:* 21, *Oxford Street, W.1:* 22, *Strand, W.C.2:* 23, *Pall Mall East, S.W.1.* 22

For illuminated lettering at least 6 in. is required at the back of the surface material to allow for the electric connections.

Great care should be taken when choosing a background for illuminated lettering of the silhouette type. The material should have an easily cleaned surface which should not be too dark or the reflective effect will be lost; however, if the surface is too smooth the line of the tube will be clearly reflected. Possible solutions are shown in the decorative tile, or the ribbed background in the Burton sign.

There are some lettering forms which are integral with the fascia, and though it can be argued that they are not applied lettering, they are included here since unlike painted signs, they involve work on the actual fascia material, and therefore design consideration has to be given to them.

incised. The first is the incised letter on stone, of which there are too few recent examples.

glass. Glass has long been used for fascias, and there are still many examples of incised gold leaf letters behind a blacked out sheet of glass, 16. It is still used with fired enamel on the reverse side of clear glass, with a limited amount of sandblasting to give depth.

It may seem odd that with the long tradition of stained glass, and the development of plate glass, it is only with the advent of Perspex that the great steps forward in illuminated signs have taken place.

Glass is cheaper, has a proved long life, and is easier to clean and maintain than Perspex, but it is much harder to fabricate, the cheap transparent colours are limited, and the basic green of common glass has a detrimental effect on the quality of the colours.

One interesting process involves the shop sandblasting of a letter into a marble fascia, and the cementing of a slightly smaller glass letter into the recess, 17. The result is a maintenance free fascia of a high order of finish; the cost is rather high.

faience blocks and tiles. A permanent form of lettering where faience facing is being used is to raise the letter in relief on the blocks. In many of the examples of this form the layout of the letters pays no attention to the joins of the blocks, which are somewhat distracting, 18.

Letters may also be raised or inset into tiles and finished with a contrasting colour. In these too there is a disregard for the joins in the tiles, except where standard letters —one per tile—are inset, as in the name plates for blocks of flats, in which case the spacing is poor.

stamped aluminium sheet. Another process that may have a limited application is one used for street name-plates in which lettering is stamped on aluminium sheet. The letter is forward of the sheet face and is finished in stoved enamel. Two faces are available, Gill Sans Serif, and Kinersley, a modified Roman face that was designed to meet the requirements of the stamping press.

illuminated lettering

As has been stated earlier, the demand for illuminated lettering is legitimate, and one that will increase. It is important, therefore, that all those concerned in fascia design and specification should give the matter serious consideration.

In the last three or four years there has been a revolution in the types of signs available, and new forms are constantly being added. This has come about largely by the exploitation of the possibilities offered by coloured perspex, a stable plastic material that has a very high light conductivity, is available in a wide range of colours, and is relatively easy to cut, bend, and join together.

There are three main groups of illuminated letter, though the dividing line between each is by no means precise and combinations occur.

The first group consists of those letters where the neon tube is exposed somewhere on the face. In the second group the face is in perspex and the light source is behind, and in the third group the letter is in silhouette.

exposed tube lettering. This is the most common form of illuminated lettering, but as it is to be the subject of a future article it will not be considered in any detail here. This summary treatment of neon lettering may be justified on other grounds; namely that it is not in fact well adapted for use on shop fascias. The coloured neon tube, fixed either in front of, or recessed within, the built-up letter, creates an almost insoluble problem: either the tube spoils the appearance of the letter by day or the letter obstructs the tube by night. Apart from this the scale of the tubing and the limitations imposed by the accommodation of the electrodes make it inapt for reproducing traditional lettering forms, the one exception being the flowing script letter, which owes its use in shop signs to the fact that it permits the long lengths of tube which are technically desirable. The neon sign, when at its best, is of another order to the kinds of sign which are being considered here and should be sharply differentiated from them.

illuminated face lettering. There are several forms in this section and it is with them that illuminated lettering for fascias has come into its own.

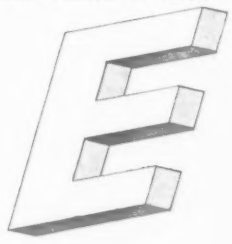
Some manufacturers use type names and these will be used here. The important feature about all of them is that practically any letter face or trade symbol may be reproduced and the faces have an equal value at night as during the day.

There are two ways of achieving colour—white light shining through coloured perspex, and coloured light shining through white or coloured perspex. It will be appreciated that these give a wholly different effect from one another when seen by day.

One very popular version of this type goes by the trade name 'Embassy.' This has built-up lead-coated steel sides (the cheaper uncoated steel quickly suffers from rust attack). The sides are stove enamelled

[continued on page 285

Illuminated fascia lettering



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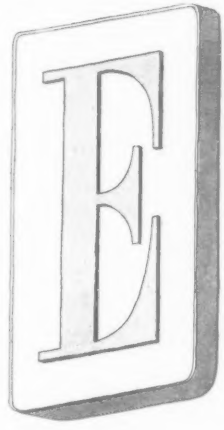

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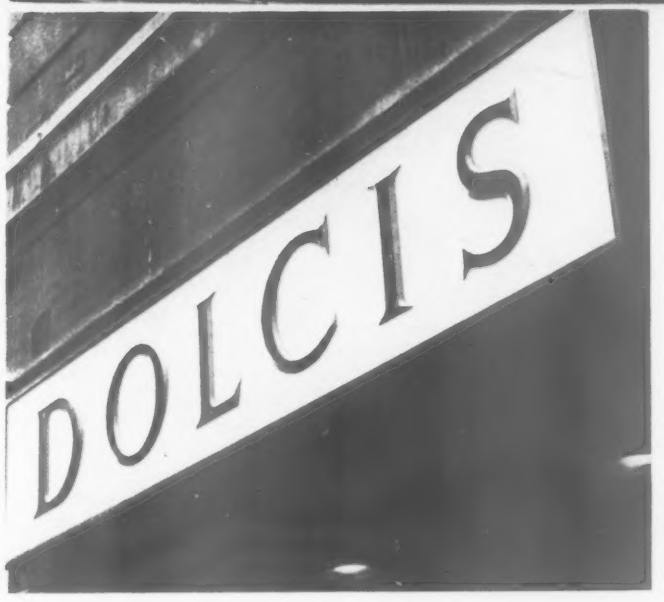


27

28

24, Doric Italic: illuminated letter with opaque Perspex sides and flush Perspex face. 25, 'Lumor' all-Perspex built-up lettering, Fleet Street, E.C.4. 26, Elongated Roman: illuminated letter with Perspex-faced metal box and coloured Perspex letter. 27, 'Ambassador' sign, Oxford Street, W.1. 28, Egyptian Italic: illuminated letter, with moulded Perspex single colour letter stuck on to coloured Perspex background.

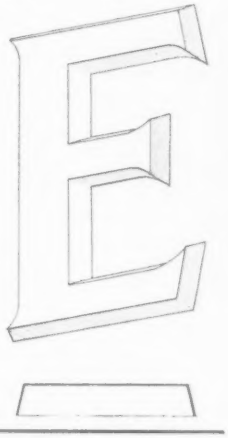
continued from page 284]

to any required colour. The front beading may be flat, half-round, inward splay, or outward splay and finished in stove enamel, gold leaf or stainless steel. The most satisfactory is an inward sloping stainless steel, which gives a very crisp letter, 19, 20, 21, 22, 23. The perspex is restricted to the most transparent colours since the night effect depends on the maximum light being transmitted, whilst the form of the light tube is obscured by the opal effect in the perspex. A variation, sold under the trade name 'Zodiac,' has a ¾-in. square beading, which has the effect of recessing the perspex face, but it suffers from cut-out of the face at oblique angles of viewing.

A third variety in this class which is marketed under the trade name 'Lumore' is an all-perspex built-up letter which, due to the method of butt jointing perspex with transparent adhesive, makes possible very clean letter forms. The most effective are those that have opaque returns, with a flush perspex face, the illumination reaching to the whole face with no beading effect, 24, 25. A variation with translucent perspex on the returns as well as the face lacks definition, there being no difference between the two, though this is overcome by the use of a different colour for the return.

A fourth type is sold under the trade name 'Ambassador.' In this type a metal box is faced with a sheet of perspex on to which is stuck a perspex letter, 26, 27. The possibilities here are infinite and as yet have not been fully explored.

relief lettering



29

30

31

32

29, Block Serif: illuminated letter, stove-enamelled built-up metal letter, fixed away from fascia with neon tube behind.

30, 31, built-up silhouette letters: 31 is in Fleet Street, E.C.4. 32, wooden fascia with inset illuminated lettering, Orient Line Offices, Cockspur Street, S.W.1.

One of the technical features is the uniform quality of the background light; this is achieved by the use of cold cathode lights and a system of baffles.

Variations are possible in the applied letter, which of course could be of any type face or script symbol. The letter can be a simple cut-out applied on the surface, or inlaid. The edges can be blacked out or beaded and gilded.

Variety in the background can be of colour or pattern. A second layer of perspex can be stuck inside a clear panel, and can be of any desired pattern—holes, stripes, colours, or mosaics. Further variations occur in the lighting, with graded effects in colour and intensity.

A very recent innovation is a moulded perspex letter, about 1 in. thick, glued over a cut-out in a perspex sheet, 28. By using a white letter and a dark coloured background a very crisp effect can be obtained in daylight. The letter section is very similar to that obtained in plastic coated hardboard. The only example I have yet seen is of a broad serif letter. By the use of lights of the Ambassador type behind the box, a fascia of bold and pleasing appearance is possible.

relief lettering. The other group of illuminated letters are the several forms of silhouetted letters. These are a built-up letter, held away from the background, with a light behind shining out on to the fascia, 29, 30, 31. This is a subtle use of light and considerable care has to be taken with the fascia. As many variations are possible with these letters as with built-up lettering. The face can be recessed or flush, flat, domed, textured, or perforated.

conclusion. Apart from these three main groups there are undoubtedly many possibilities open to those willing to give the matter a little thought, and as a tail-piece we show the New Orient Line fascia in Trafalgar Square, 32. This is a deep wooden fascia with cut-out letters of a specially designed face, trimmed with a black plastic beading and with an illuminated sheet behind.

acknowledgments

The following manufacturers of illuminated lettering supplied information: Chase Metal Products; Claudgen; Franco Signs (users of the trade name Lumore); Pearce Signs (users of trade names Embassy, Zodiac and Ambassador); Ward & Co. Information was also supplied by the manufacturers of applied lettering listed in table a.

table a *manufacturers of applied lettering who supplied information and their products. (The list is not exhaustive.)*

name	cast metal (aluminium or bronze)	Perspex	other plastic	wood	built-up metal	special forms
Butler Jones	*	*				
Carter Tiles						raised faience letters and tile letters
Chase Metal Products	*	*			*	
Dragard & Humble		*				two-colour inlaid Perspex
Dryad	*	*		*	*	one price for all faces
Franco Signs	*	*			*	
Gowshall						stamped aluminium sheet
Harry Heath	*			*	*	
IFO (Dennis Williams)						freestanding ceramic letters
James Gibbons	*					
G. P. Kershaw	*	*	*	*	*	built-up plastic
Lettering Centre	*	*	*	*	*	plastic-coated hardboard (Arborite)
London Industrial Art						Graforel cork lettering
London Sand Blast Co.						glass fascia work; sand blasted marble
Reed Millican						inlaid with glass
Parker Winder and Achurch	*					glass fascia work
Thermoplastics						moulded Perspex
Ward & Co.	*	*		*	*	

table b *materials and sizes generally available. In order to give a guide to cost, a price has been obtained for a standard 12-inch letter, but it should be remembered that the cost-to-size ratio varies for each material.*

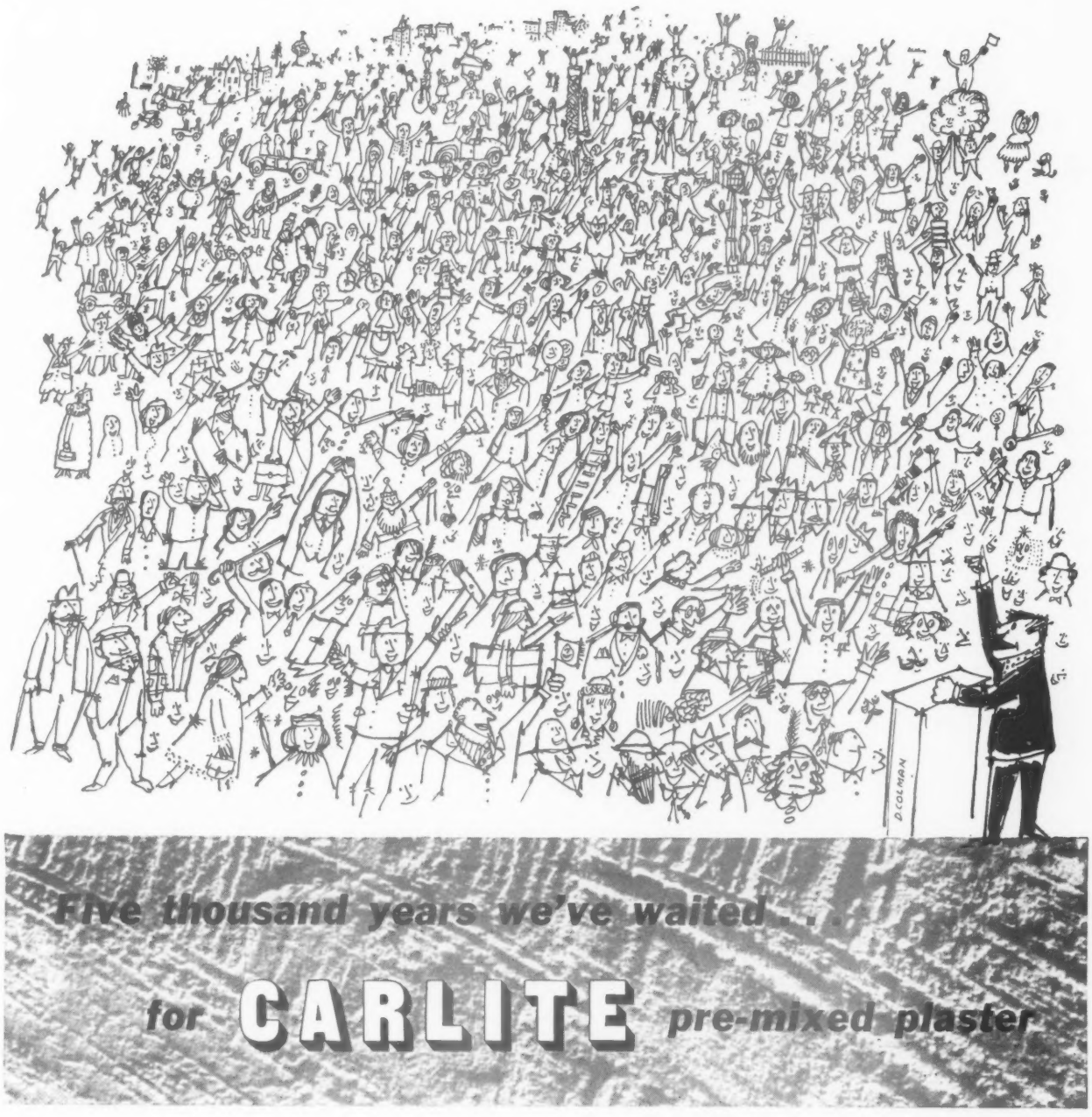
materials	sizes	thickness	price	remarks
cork	Up to 12 ins.	—	6/6—10s.	range of faces
wood plain flat	2 ins.—30 ins.	½ in.—2 ins.	6/6	any face
wood plain half round	2 ins.—30 ins.	½ in.—2 ins.	12s.	faces with equal thicknesses of strokes
wood flat enamelled	2 ins.—30 ins.	½ in.—2 ins.	13s.	
moulded Perspex	2 ins.—24 ins.		16s.	one half-round face only
lead-coated sheet steel	4 ins.—36 ins. upwards		17s.—25s.	any face and limitless variations
enamelled hardboard	3 ins.—24 ins.	⅛ in.—2 ins.	24s.	any face
enamelled plastic sheet	1 in.—24 ins.	1/16 in.—⅛ in.	25s.	any face
plastic covered hardboard	6 ins.—36 ins.	½ in.—2 ins.	33s.	any face. All the corners have a slight radius
cut-out Perspex	2 ins.—24 ins.	¼ in.—½ in.	34s.	any face
cast aluminium	2 ins.—24 ins.		24s.	
cast bronze	2 ins.—24 ins.		26s.—37s.	flat face or V section Trajan Gill Sans and two or three poor 'modern faces'
filled bronze (enamelled)	2 ins.—24 ins.		36s.—50s.	
freestanding ceramic	6 ins.—18 ins.	—	40s.	available in Clarendon only
built-up Perspex	2 ins.—24 ins.	variable	45s.	any face
inlaid Perspex	3 ins.—12 ins.	¼ in.—⅜ in.	62s.	any suitable face
gold leaf inside moulded Perspex	8 ins.—24 ins.	—	95s.	½ round sans serif face only
sand-blasted marble inlaid with glass	2 ins.—24 ins.	flush	80s.—100s.	any face
faience: skeleton	12 ins.—96 ins.	up to 6 ins.	80s.	
relief	1½ ins.—18 ins.	1/16 in.—⅛ in.	84s.	
slip outline	1 in.—18 ins.		22/6	

HIGH FIDELITY EQUIPMENT: HOUSE NEAR BEAULIEU

Readers who have noticed the Hi-fi equipment on the house at Beaulieu by Sir Hugh Casson on pages 257-260 may want to know more about it. The equipment comprises an amplifier and control unit and two gramophone turntables, all of which are standard equipment; also a purpose-made loudspeaker. This last is of unique design, being 82 in. long, with a mouth of 72 in. dia.

The loudspeaker is of non-resonant plaster and is totally encased in a wooden casing. The whole of the horn is out of doors and the mouth is fitted against one side of the bungalow, while the sound comes through a plastic grill in front of the opening. This loudspeaker horn is fitted with a Goodman's 15-in. loudspeaker unit, model 1502 of the Audiom 80 series and one medium frequency and two high frequency loudspeaker units fitted on a baffle which is suspended in the mouth of the horn. These units are a model Wharfedale Super 8/CS 8-in. loudspeaker unit for the middle frequencies and two Wharfedale Super 3, 3-in. high frequency units. A special three-way crossover network is also supplied and the overall frequency response from this, with 'The Monster' horn, is substantially *flat* from 40 cycles up to approximately 18,000 cycles. In practice the response extends well below 40 cycles and a really substantial output is obtained even as low as 16 cycles. The whole loudspeaker assembly gives an astounding feeling of presence and spaciousness whether the sound is being reproduced at low levels or at full output. It is probably true to say that there are very few loud-

[continued on page 288



Aha! A revolution in plaster and about time too. Five thousand years is a lot of 44-hour weeks, but it is roughly the number of years that Man has been plastering with heavy sanded plasters. The first advance of basic importance in all this time is Carlite.

Carlite is a *pre-mixed* plaster, and in it sand is replaced by a lightweight aggregate of Perlite, which is premixed with gypsum in the factory.

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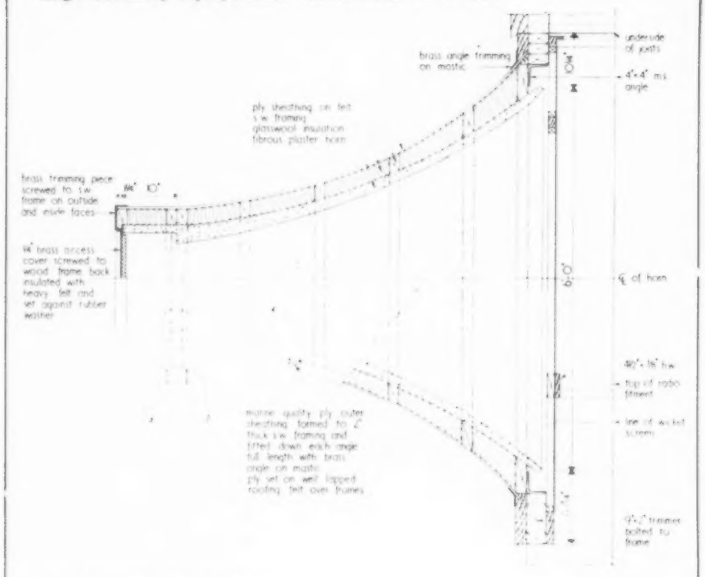
The Gotham Company Limited, Gotham, Nottingham.
The Carlisle Plaster & Cement Co., Cocklakes, Nr. Carlisle.
Thomas McGhie & Sons Ltd., Kirkby Thore, Westmorland.

High Fidelity equipment: house near Beaulieu


brass angle trimming on mastic
underside of joists
4"×4" mx angle
ply sheathing on felt t.w. framing glasswool insulation fibrous plaster horn
brass trimming piece screwed to t.w. frame on outside and inside faces
¼" brass access cover screwed to wood frame back insulated with heavy felt and vet against rubber weather
℄ of horn
top of radio fitment
line of acoustic screen
marine quality ply outer sheathing formed to 2" thick t.w. framing and fitted down each angle full length with brass angle on mastic
ply set on well lapped roofing felt over purlins
½"×2" trimmer bolted to frame

Section through hand-speaker horn.

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speaker assemblies in domestic use in this country, or even in the United States, which have such an extended frequency range, such an even frequency response and such an absence of peaks. The horn was designed by W. P. Hickson, who is a Director of the John Lewis Organization.

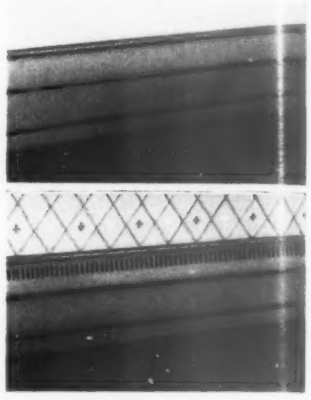
4 THE INDUSTRY

Skirting Heating

Inevitably the widescale adoption of glazed walls and the desire, in many cases, to carry glazing down to within inches of the floor have had profound repercussions on the problem of heating. Unfortunately the evidence on the effectiveness of glazed walls in producing comfort conditions and of their influence on heating are far from complete, and we cannot yet be sure of the correct equipment to be used. Underfloor heating is, of course, one alternative, but it may not always be desired to use a form of heating with so high a thermal capacity. An alternative is skirting heating, which has the obvious advantage of giving a linear heat source to counteract down-draughts along the full length of the external wall. A new range of skirting heaters has now been put on the market by Copperad Ltd. under the trade name 'Wallstrip.' There are three distinct products in the range. There are two convector type heaters: a general purpose model (type C) and a heavy grade model (type RC) for use where rough treatment is to be expected; and there is one radiant type heater (type R) for use in hospitals where dust is taboo and easy cleaning essential. All can be used with low temperature hot water, and type C is also available for steam and high temperature hot water.

Copperad Ltd., Colnbrook, Slough, Bucks.

Type R, top, and type RC, below, of the Copperad 'Wallstrip' skirting heating.



Built-in Designs

The fact that there are several different types of infill panel on the market which lend themselves to the incorporation of designs does not seem to have triggered off the orgy that might have been feared. One point is clear, however. Namely an outlet for expression which is so obvious should be quickly exploited by architects, for otherwise its exploitation (like that of neon signs) will remain in the hands of others less scrupulous and less gifted. There are two points of

[continued on page 290

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Model 2003 Auto (Chloro-Flash) Extinguisher.....FOC Ref. NO. 104/7 for Class B & C fire risks (*extra-hazardous fires involving spirits, alcohols, organic solvents and electrical equipment*).

Model 1604 Dry Powder Extinguisher.....FOC Ref. NO. 104/8 for class B & C fire risks (*inflammable liquids of every type—unless they are shielded—and all electrical risks*).

All these models comply with British Standard specifications, where these exist. No British standards exist for chlorobromomethane extinguishers or double-action nozzles like that of the Universal extinguisher. But special FOC approval has been given to these Nu-Swift features because of their increased efficiency.

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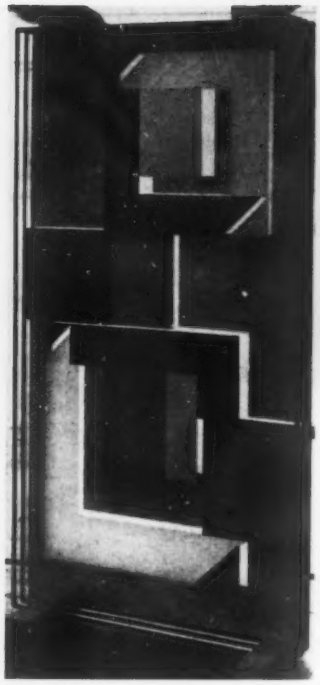

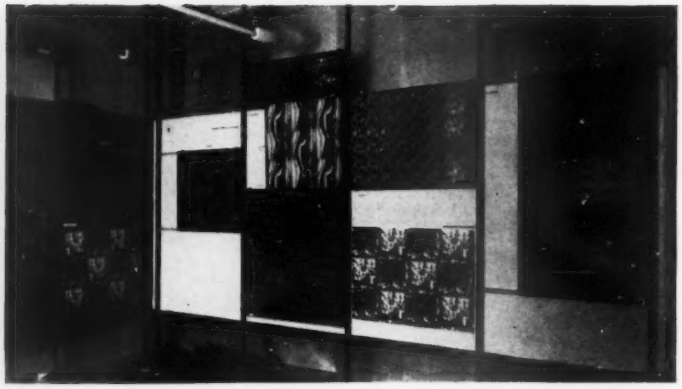

built-in designs

Left above, a mural translucent panel entitled 'Cubes,' by Cecil Stephenson. Right above, panels for opaque application, spandrel panels, wall panels, etc.; designs by Cecil Stephenson. Screen printed designs are black or black and grey, with standard range colours used as backing. The scale of the design can be increased or reduced as necessary.

continued from page 288]

departure. One is the incorporation in the panel of lettering and other signs which would otherwise be applied. The other is the use of panel designs to provide a texture. The recent exhibition of Abstraform designs executed in Plyglass by Cecil Stephenson and Edward Curtis serves to remind us that Plyglass Vitroslab can be used in either way. The panels illustrated top right are opaque and have been designed to give textural effect at certain distances. The panel illustrated below is translucent and is formed of four thicknesses of Plyglass with three 1-in. cavities between. This last shows that panels can be formed into illuminated signs with great ease and doubtless with considerable saving in maintenance.

Plyglass Limited, Sandhurst Close, South Croydon, Surrey.

CONTRACTORS etc

Roof Garden at Guildford. *Architects:* G. A. Jellicoe & Partners. *Main contractor:* James Carmichael (Contractors), Ltd. *Sub-contractors: Shopfitting:* Harris & Sheldon. *Heating and ventilation and kitchen equipment:* Troughton & Young, Ltd. *Metal windows:* Ideal Casements (Reading), Ltd. *Tiling and terrazzo floor:* B. Finch & Co. *In situ terrazzo:* Diespeker & Co. *Electric clocks:* Gent & Co. *Restaurant upholstery:* Aerofoam. *Woodblock flooring:* Decorative Floors, Ltd. *Photo-mural:* The Autotype Co. *Roof garden contractors:* William Wood & Son. *Blinds and umbrellas:* J. Avery & Co.

House near Beaulieu, Hants. *Architect:* Hugh Casson. *Associate architects:* R. A. Green and Margaret Casson. *Consulting engineer:* Sefton Jenkins. *Quantity surveyor:* A. S. Roberts. *General contractors:* George Shears & Sons. *Sub-contractors: Electrical installation:* Electrical Services (Shears), Ltd. *Sanitary fittings:* Messrs. Shires & Co. (London). *Bunks, seat fittings, internal joinery and dressing fittings in guest bedroom:* George Shears & Sons. *Bedhead fittings, dressing table fittings in main bedroom, radio fittings and modified TV fitting, loud speaker construction:* F. E. Ward (Hammersmith), Ltd. *Light fittings:* Merchant Adventurers; Troughton & Young. *Sliding doors:* George King & Co. *Sink unit:* Leisure Kitchen Equipment. *Furniture:* Woolland Bros. *Ironmongery:* Alfred G. Roberts, Ltd. *Dome light:* T. & W. Ide, Ltd. *Paints:* Mander Bros., Ltd. *Western red cedar, red deal boarding:* J. T. Sydenham & Co. *Iroko:* W. W. Howard Bros. & Co. *Built-up roof:* Ragusa Asphalte Co.

Technical Services Building at Welwyn Garden City. *Architect:* E. D. Jefferiss Mathews, of J. Douglass Mathews & Partners. *General contractors:* Welwyn Builders, Ltd. *Sub-contractors: Reinforced concrete:* Twisteel Reinforcement, Ltd. *Bricks:* R. Y. Ames, Ltd. *Special roofings:* Stramit Boards, Ltd. *Roofing felt:* Standard Flat Roofing, Ltd. *Partitions:* Holoplast, Ltd.; Firmin & Collins, Ltd.; Flexo-Plywood Industries. *Patent glazing:* Haywards, Ltd. *Wood block flooring, sanitary fittings:* Broad & Co. *Artificial stone, patent flooring:* Atlas Stone Co.

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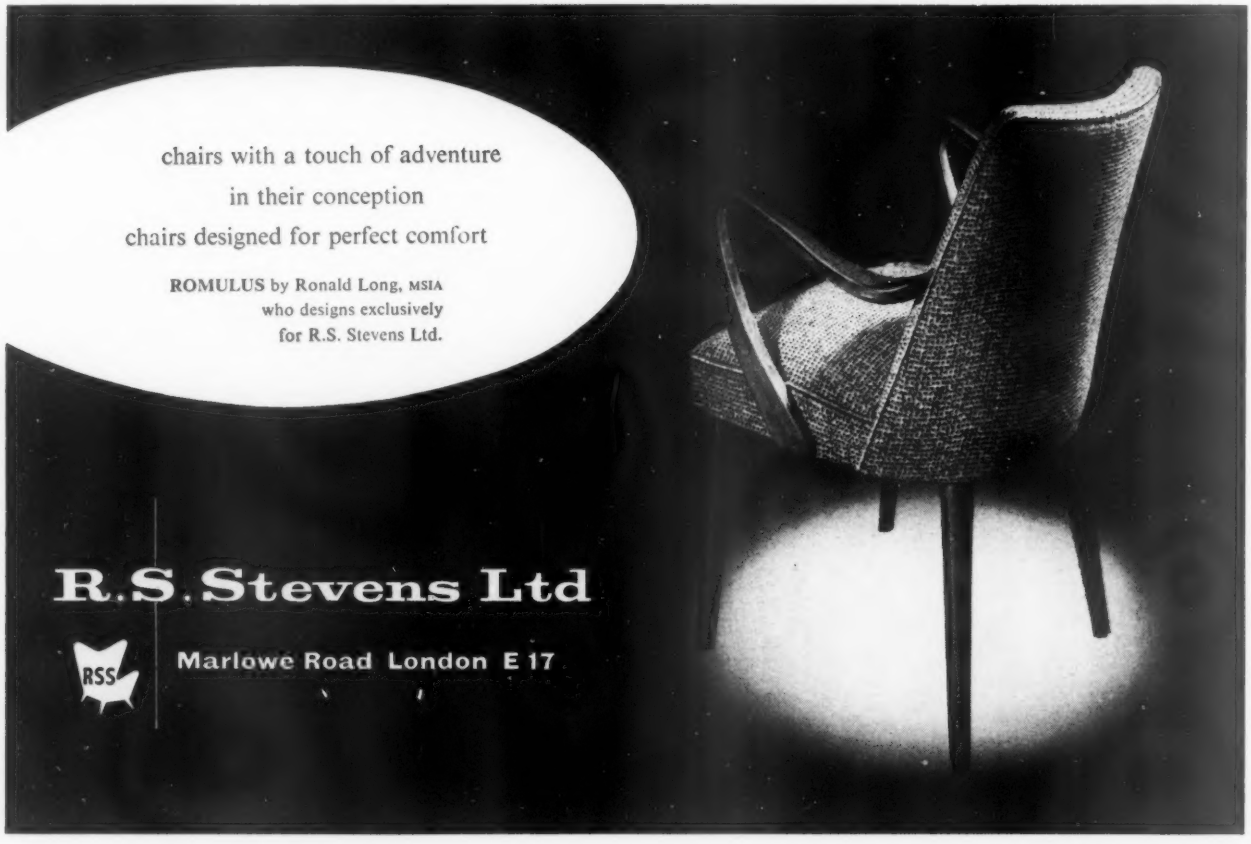

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Amongst the Architects to whom acknowledgment is due are Ellis E. Somake, F.R.I.B.A., F.R.S.A. and Westwood Sons and Partners

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